

The tribe Pseudophloeini (Hemiptera: Coreidae) in the Old World tropics with a discussion on the distribution of the Pseudophloeinae

W. R. Dolling

Department of Entomology, British Museum (Natural History), Cromwell Road, London SW7 5BD

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Synopsis

The major morphological features of the Pseudophloeini are outlined and their bearing on the classification of the tribe is discussed. Twelve genera and 43 species are recognized in the tropical regions of Africa and Asia; descriptions and keys for their separation are provided. Four genera and 16 species are described as new. Three new synonymies are established at the genus-level and four at the species-level; 10 new combinations are established; two 'forms' are raised to the status of species and nine lectotypes are designated.

Introduction

Plant-feeding bugs of the family Coreidae are characteristic inhabitants of the herb and shrub layers of tropical and, to a lesser extent, of temperate ecosystems. They are frequently encountered in surveys of crop pests, since most of the world's tropical crops are herbs or shrubs, and are usually represented in collections made during ecological studies in the tropics. Most of the literature available for the identification of Coreidae is out of date, fragmentary or lacks identification keys.

Pseudophloeinae may be recognized, with a little practice, by their general habitus and size, and by the absence of a dorsal sulcus on the tibiae; other groups of Coreoidea lacking tibial sulci

– Alydidae, Rhopalidae, Stenocephalidae and the coreid subfamily Hydarinae – are unlikely to be mistaken for Pseudophloeinae because they are all of characteristic appearance. Coreinae similar in size and build to Pseudophloeinae all have very distinct tibial sulci. Twenty-eight valid genera and 166 species of Pseudophloeinae have been described. Most of the species are 7–10 mm in length; a species of typical appearance is illustrated in Fig. 1.

The food plants of all species of the subfamily, where known, are herbaceous legumes (Fabaceae). Host plant records for the tropical Pseudophloeini are very scarce, as are other details of their biology. There is only a single, New World, species of the subfamily in which facultative brachyptery is known; all other species are fully macropterous. Flight, therefore, is probably important, yet there are very few records of them being caught in light traps, interception traps or yellow trays; presumably they fly only rarely and then not far. Most species have rather restricted ranges and only one is recorded from oceanic islands. Tropical-crop entomologists and collectors in Europe report them to move sluggishly even when disturbed and to be reluctant to fly. The typical habitats of Pseudophloeinae reflect those of their host plants: open woodlands and grasslands with scattered trees; a few species have penetrated drier grasslands on the one hand and forest clearings on the other, but deserts and dense forests, to judge from the distribution patterns of the tropical species, are impenetrable barriers to most of them. Several species are restricted to high altitudes, suggesting that low temperatures are not barriers to dispersal in the long term, a reasonable supposition in view of the richness of the Palaearctic pseudophloeine fauna.

The subfamily is represented in almost all parts of the major land masses except for non-tropical Australia. Recent revisions by Froeschner (1963), Dolling (1977) and Dolling & Yonke (1976) enable the Nearctic and Neotropical species to be identified. Most Palaearctic species are covered by the keys of Stichel (1960), which should be used in conjunction with the notes of Chernova (1979). The largest Palaearctic genus, *Coriomeris* Westwood, was revised by Chernova (1978). A new Palaearctic species of *Microtelocerus* Reuter was described from Sinai by Dolling (1979b) and a new genus with a single new species was added by Puchkov (1979). The tribe Clavigrallini, which is confined to the Old World tropics and contains a number of pest species, has been monographed by Dolling (1978: 1979a). The present revision covers all of the genera of Pseudophloeinae not treated in the above works.

Diagnosis of Pseudophloeinae and its division into tribes

Stål's original (1868: 535) diagnosis of Pseudophloeinae mentioned only the presence of an antevannal vein. Later (1873: 33–34), he mentioned also the broad cells at the base of the hemelytral membrane, the form of the metathoracic scent-gland auricle, the lack of a median dorsal impression on the head, the prominent and gently declivent tylus and juga, the prominent posterior angles of the seventh abdominal segment in both sexes, and the non-sulcate tibiae. Dolling (1978: 282) gave a fuller diagnosis, adding mention of the outer apical processes of the antennifers and several features of the genitalia. The antevannal vein is not present in five genera: the Neotropical *Vilga* Stål; the Oriental *Hoplolomia* Stål and *Indolomia* gen. n., the Afrotropical *Paramyla* Linnavuori and the Afro-Asian *Risbecocoris* Izzard. All five of these genera accord well with the revised diagnosis of the subfamily and there seems no reason to exclude them from it because of the absence of this single character; in fact, Stål (1873) included *Hoplolomia* in Pseudophloeinae, presumably on the basis of other features and in ignorance of the venation of the hind wing.

The tribe Clavigrallini was erected (as division Clavigrallaria) by Stål (1873: 81) in a key to the African and Asian genera of the subfamily. It was characterized by him as having the scutellum convex, the base of the posterior femur devoid of the small tubercle which is present in many genera of Pseudophloeinae, the body compressed laterally, the male genital capsule not biemarginate posteriorly, the propleuron emarginate on its posterior margin near the postero-dorsal angle, the second antennal segment equalling or exceeding the third in length and the prescutellar angles of the pronotum armed with a spine. The first couplet of Stål's key contrasted *Mevania* Stål, *Myla* Stål and *Hoplolomia* with the 'Clavigrallaria', uniting these three non-

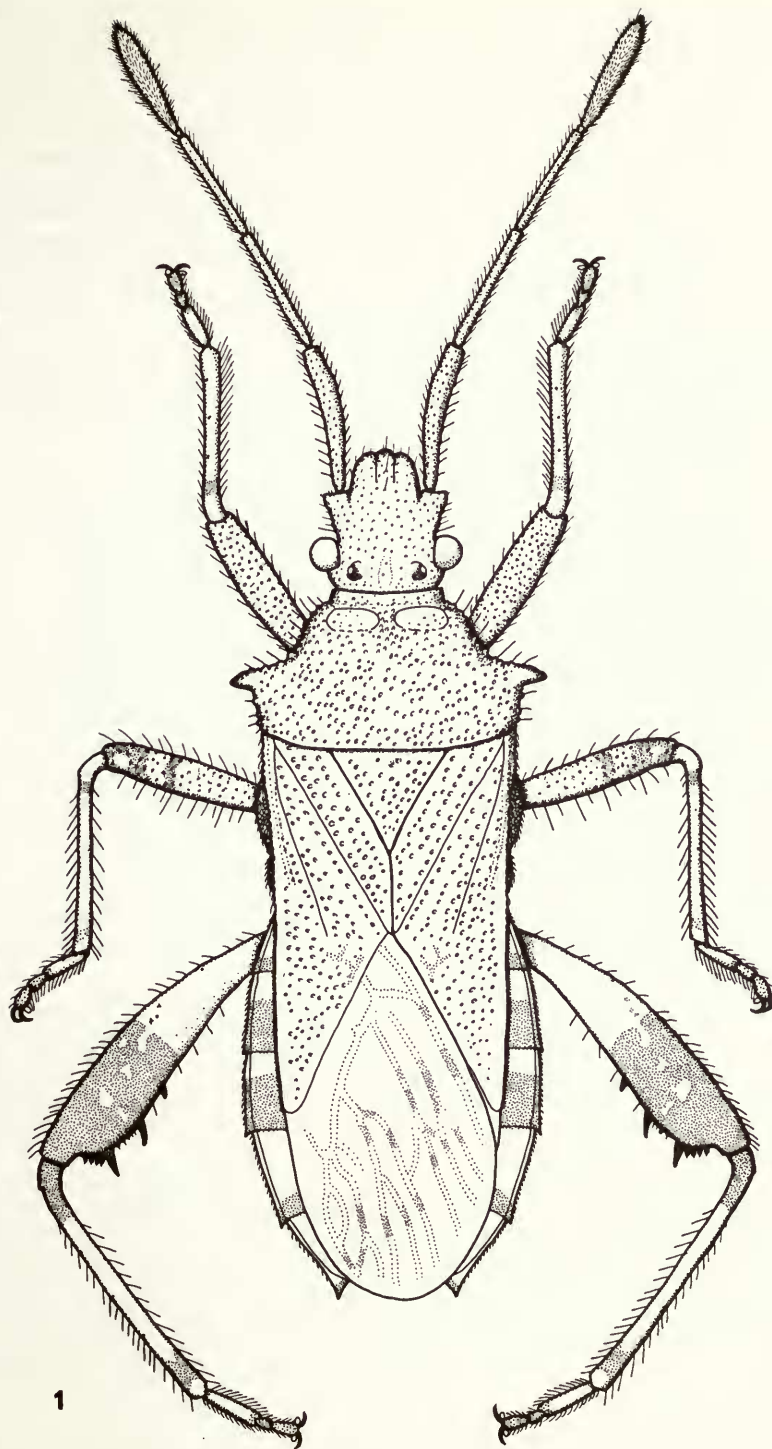


Fig. 1 *Psilolomia pundaloyae*, dorsal view of male.

clavigralline genera on the basis of their common possession of a flat or almost flat scutellum, a tubercle at the base of the posterior femur, the posteriorly biemarginate genital capsule with the emargination filled by the apices of the parameres, the posterior tibiae not or slightly shorter than the femur and the second antennal segment shorter than the third. Although Stål did not formally diagnose or name a 'division Pseudophloearia' to contrast with his 'Clavigrallaria', his recognition of the latter implies the existence of the nominate tribe. An additional feature, both universal among Clavigrallini and restricted to them, is the presence of a pair of small tubercles at the base of the mesoscutellum adjacent to the posterior margin of the pronotum. In a few Clavigrallini, the second antennal segment is shorter than the third, or the scutellum is flat, or the genital capsule is biemarginate posteriorly, or the posterior tibiae are subequal in length to the femora, or the body is depressed rather than compressed. The emargination of the propleuron, the absence of a femoral tubercle and the presence of the basal tubercles of the scutellum are constant features of the tribe, as is the presence of an antevannal vein. Among the non-clavigralline genera, the scutellum is occasionally convex and the propleuron emarginate (both conditions well developed in *Vilga westwoodi* (Kolenati)). The tubercle at the base of the femur is absent in *Risbecocoris* and *Vilga*.

No further tribes have been described, so the subfamily at present comprises the Clavigrallini and the nominate tribe, Pseudophloeini. The unique characters of the Clavigrallini are probably apomorphies within Pseudophloeinae while those of Pseudophloeini are, in general, plesiomorphies. Both the presence of the basal tubercle of the posterior femur and the presence of the antevannal vein of the metathoracic wing are probably apomorphies within the subfamily (though it is interesting to note that the genus *Spathocera* Stein, in the Coreinae, has an antevannal vein, and a group of genera including *Riptortus* Stål, in the Alydinae, have a femoral tubercle). Pseudophloeinae can, therefore, be divided into four unequal groups (Table 1): *Vilga* and *Risbecocoris*, lacking both vein and tubercle; *Paramyla*, *Hoplolomia* and *Indolomia*, lacking the vein but possessing the tubercle; Clavigrallini, possessing the vein but lacking the tubercle; and all the remaining genera, possessing both vein and tubercle. Assuming that the lack of both vein and tubercle is primitive, a possible interpretation of the phylogeny of the Pseudophloeinae is that Clavigrallini and most Pseudophloeini are united by descent from a common ancestor that had no femoral tubercle but had acquired an antevannal vein; from this stock developed two lines: on the one hand Clavigrallini and on the other all those genera with both a femoral tubercle and an antevannal vein. On this interpretation, *Paramyla*, *Hoplolomia* and *Indolomia* would have acquired their femoral tubercles independently of most Pseudophloeini; alternatively, these three genera may have secondarily lost their antevannal veins. Recently, Štys (1978) suggested that the antevannal vein was primitively present in the common ancestor of all Coreidae. This interpretation is rejected here because it would involve recognition of a group comprising the genera *Vilga*, *Risbecocoris*, *Paramyla*, *Hoplolomia* and *Indolomia* sharing the apomorphy of the loss of this vein. This group, based on a loss character that unites these five morphologically diverse and geographically widely dispersed genera, is unlikely to have any phyletic validity.

A classification that reflected the most probable phylogeny of the subfamily would require the erection of two or three additional tribes to accommodate *Vilga*, *Risbecocoris* and, possibly, *Paramyla* plus *Hoplolomia* plus *Indolomia*. An assumption of independent acquisition of the antevannal vein by Clavigrallini and the main group of Pseudophloeini would require separate tribes for *Vilga* and *Risbecocoris* but not the other three of these genera. In the present work such new tribes are not erected. The subfamily Pseudophloeinae and the tribe Clavigrallini are both believed to be holophyletic in composition, leaving the nominate tribe paraphyletic.

Rejected genera

Four genera represented in the geographical area covered by the present revision were originally described in Pseudophloeinae or associated with genera that belong in the subfamily.

Brotheolus Bergroth (1908: 107) is a replacement name for the preoccupied *Brotheus* Distant

(1902a: 248) which was placed by Distant (p. 246) in Pseudophloeinae. It was transferred to Coreinae: Gonocerini by Dolling (1979b: 97).

Trallianus Distant (1902b: 404–405) was originally placed in Pseudophloeinae but was transferred to Coreidae: Gonocerini by Dolling (1979b: 97).

Cristovallia Distant (1920: 149–150) was said by its author to have ‘affinity with the genera *Clavigralla* and *Ceraleptus*’ (both Pseudophloeinae). Brown (1958: 514) synonymized its type-species, *C. typica* Distant, with *Amblypelta bilineata* Stål in Coreinae: Dasynini.

Austrocoris Hsiao (1965: 426) was described in Pseudophloeinae. Later, Hsiao (1977: 253) synonymized it with *Chariesterus* Laporte but placed the latter genus in Pseudophloeinae. Its correct position is in Coreinae: Chariesterini.

Abbreviations of depositories

Specimens mentioned in the text are held in a number of different depositories; the addresses of 20 of these have been abbreviated as follows.

AMNH	American Museum of Natural History, New York, U.S.A.
BMNH	British Museum (Natural History), London, U.K.
BPMH	Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A.
CAS	California Academy of Sciences, San Francisco, U.S.A.
IAR	Institute of Agricultural Research, Samaru, Nigeria
IP	Institut für Pflanzenschutzforschung, Eberswalde, D.D.R.
IRSNB	Institut Royal des Sciences Naturelles, Brussels, Belgium
IZ	Institute of Zoology, Academy of Sciences, Leningrad, U.S.S.R.
IZPAN	Institut Zoologiczny, Polska Akademia Nauk, Warsaw, Poland
MNH	Muséum National d'Histoire Naturelle, Paris, France
MNHU	Museum für Naturkunde der Humboldt-Universität, Berlin, D.D.R.
MRAC	Musée Royal de l'Afrique Centrale, Tervuren, Belgium
NMB	National Museum, Bulawayo, Zimbabwe
NMP	Natal Museum, Pietermaritzburg, South Africa
NMV	Naturhistorisches Museum, Vienna, Austria
NR	Naturhistoriska Riksmuseet, Stockholm, Sweden
TM	Transvaal Museum, Pretoria, South Africa
UG	University of Ghana, Legon, Ghana
UM	University Museum, Oxford, U.K.
ZMU	Zoological Museum of the University, Helsinki, Finland

Terminology and measurements

Antennal and rostral segments are numbered I to IV starting with the segment attached to the body. The term ‘rostral’ is used in preference to ‘labial’ because the base of the first segment of the labium is usually obscured; the first segment of the rostrum is arbitrarily taken to commence at the base of the labrum, which is almost always visible. Measurement of antennal segments excludes the narrow, unsculptured bases of segments I, II and III and the small ring-segment between III and IV. Ranges of measurements are given where this procedure seems useful (it is not used in the case of ratios of lengths of rostral and antennal segments, where it would be too cumbersome and would be of minimal use in identifying species). Means were calculated during the preparation of this revision but were discarded: because of the unequal representation of different populations in the samples available it was felt that they would be unhelpful and possibly misleading. Surprisingly often, means were found to fall almost exactly half-way between the extremes of the ranges cited. The reliability of the range of measurements of any species as a guide to what might be encountered by the reader in examining his own material will depend largely on the number of specimens examined by the author and the number of localities from which they were collected; this information is given under the heading ‘Material examined’ for each species. It should be borne in mind that the antennae of these insects are fragile and that the figures given for the ratios of the lengths of the antennal segments are in all likelihood based on progressively fewer specimens as one proceeds towards the distal end of the antenna. The

term 'posterior' as applied to angles and spines of the pronotum is avoided in favour of the unambiguous terms 'posterolateral' and 'prescutellar'; the former usually project laterally or anterolaterally from the sides of the body while the latter are situated, if they are present at all, on the posterior margin of the pronotum close to the lateral angles of the scutellum and project posteriorly. Detailed descriptions of the body sculpture, pubescence and colour are usually given either under the description of the genus or under the description of one species of each genus that typifies the condition of these characters throughout the genus, and only deviations from this pattern, if they occur, are given for the other species. In descriptions of sculpture, the term 'granule' is applied to projections that are no higher than their width and 'tubercle' applies to projections longer than this; on the femora, there is a continuous gradation from granules through tubercles to small spines; all of these structures are probably derived from enlarged hair bases that, in the case of spines, have either lost the hair completely or have its insertion displaced from the apex of the setiferous tubercle.

Key to the genera of *Pseudophloeini* found in the Old World tropics

- 1 Posterior femur without tubercle adjacent to base of trochanter. Appearance characteristic (Fig. 2) **RISBECOCORIS** (p. 156)
- Posterior femur with tubercle adjacent to base of trochanter, rarely obsolete and insect then of general appearance of Fig. 1 2
- 2 Antennal segment II less than one-third as long as segment III **ARENOCORIS** (p. 191)
- Antennal segment II more than half as long as segment III 3
- 3 Posterior margin of pronotum with a pair of spines projecting backwards over bases of clavi at rest (Figs 20, 25, 77) 4
- Posterior margin of pronotum smooth or at most with a few, low tubercles or granules. 5
- 4 Head dorsally and pronotum laterally with long spines; antennal segment I strongly clavate, with many long spines and tubercles (Fig. 77). **MEVANIDEA** (p. 187)
- Head, pronotum and antennae without spines. **PARAMYLA** (p. 165)
- 5 Main pubescence of body and hemelytra of short, decumbent, scale-like hairs (Figs 97, 98). 6
- Main pubescence of body and hemelytra of longer, erect or suberect, bristle-like hairs 8
- 6 Male with apical tooth of paramere upcurved, apex of paramere not filling posterior emargination of genital capsule (Fig. 96). (Africa) **MYLA** (p. 193)
- Male with parameres club-shaped, apical tooth short and not curved, apex of paramere filling posterior emargination of genital capsule (as in Fig. 21). (Asia) 7
- 7 Pronotum with posterolateral angles strongly produced anterolaterally (Figs 63, 64).
..... **PSEUDOMYLA** (p. 180)
- Pronotum with posterolateral angles slightly prominent (Fig. 58) **PUNGRA** (p. 179)
- 8 Abdominal sternites III to VII with posterolateral angles right-angled or acute, not projecting as triangular teeth (maximum degree of serration as in Fig. 42). **PSILOLOMIA** (p. 168)
- Abdominal sternites III to VII produced into triangular teeth, making outline of abdomen coarsely serrate (Figs 13, 19). 9
- 9 Antevannal vein present in metathoracic wing. (Africa) 10
- Antevannal vein absent from metathoracic wing. (Asia) 11
- 10 Scutellum terminating apically in a small, elevated, white blob. **MEVANIOMORPHA** (p. 185)
- Scutellar apex pointed, neither elevated nor white. **NEOMEVANIOMORPHA** (p. 183)
- 11 Pronotum (Fig. 12) coarsely granulate-tuberculate, posterolateral spines arising abruptly from posterolateral angles. **HOPLOLOMIA** (p. 161)
- Pronotum (Fig. 18) finely granulate-tuberculate, posterolateral angles tapering smoothly into posterolateral spines. **INDOLOMIA** (p. 163)

RISBECOCORIS Izzard

Risbecocoris Izzard, 1949: 478–479. Type-species: *Risbecocoris tomentosus* Izzard, by original designation.

Body rather elongate, about 2.5–3.0 times as long as broad, strongly depressed. Connexivum moderately expanded.

Head about as long as pronotum, strongly convex; eyes small, prominent; ocelli dorsally obscured by pads of tomentose pubescence; dorsum of head strongly granulate and, at level of base of antennifers, with a pair of prominent setiferous tubercles; each antennifer laterally with two or three similar tubercles and a

broad, weakly deflexed and ventrally incurved apical process. Antennal segment I varying in length from about four-fifths to almost equal to head width including eyes, with long, outstanding tubercles, cylindrical through most of its length but narrowed gradually towards base in proximal one-quarter; segments II and III distinctly more slender than I, tuberculate, II shorter than I, III longest of all; IV shortest, slightly thicker than II or III, elongate fusiform, specialized sensory area occupying its apical two-thirds. Bucculae occupying about one-half of ventral midline of head. Rostrum at rest reaching to posterior margin of mesosternum, segments I and II subequal, III about half as long as I and IV about two-thirds as long as I. Posterior half of head with two rows of tubercles flanking rostrum, in line with bucculae.

Pronotum shallowly declivent, granulate, posterior margin straight, prescutellar spines absent, postero-lateral angles weakly elevated, lateral margins almost straight, with five long, laterally directed spines. Scutellum about 1.2 times as long as its basal width, almost flat, apex pointed. Mesosternum deeply sulcate longitudinally. Metasternum convex with fine, median, longitudinal groove. Metathoracic scent-gland peritreme with dorsal ridge modified into a short, spout-like structure, circular in outline and completely surrounding orifice (Fig. 4). Corium with costal margin convex, apical margin weakly convex, all veins very strongly prominent; membrane of hemelytron with venation reticulate, prominent. Metathoracic wing (Fig. 5) with subcosta free in apical two-thirds, antevannal vein absent. Femora and tibiae with rows of prominent tubercles or granules; posterior femur without subapical spines but with one or two small tubercles in this position and no apical series; base of femur adjacent to trochanter lacking a tubercle.

Abdominal sternites III–VII with posterolateral angles produced into progressively longer spines, lateral margins of sternites and spines bearing prominent granules and tubercles. Abdominal spiracles situated very close to lateral margins of sternites, prominent. Male genital capsule (Figs 9–11) broadly emarginate posteriorly, emargination filled by apices of parameres. Phallosome with a ventral sclerite, produced dorsolaterally, and two rather broad dorsal longitudinal sclerites. Conjunctive with median dorsal and ventral lobes, distal and apical lobes various. Vesica short, not protected by any basal sclerites, wings of ejaculatory reservoir complex articulating with broad, distal dorsolateral sclerites. Spermathecal duct short, almost straight except for one sharp bend; bulb narrowly lunate. Anus of female directed ventrally.

Dense, off-white, tomentose pubescence present on head, pronotum, scutellum, clavus, corium, connexivum, underside, antennae up to and including base of segment IV and legs up to and including bases of tibiae. Erect hairs of body and of first one or two antennal segments very long and curved, remaining parts of antennae and other appendages with shorter, straight, erect hairs.

REMARKS. All species of this genus have a very distinctive appearance (Fig. 2) by virtue of their long, dense pubescence and long, lateral pronotal spines. Reticulate venation of the forewing membrane is characteristic of ground-dwelling Coreidae. The distally free subcosta in the metathoracic wing is unique in the family. The features that give the insects of this genus their remarkable appearance have probably arisen in response to the demands of what is, for a coreid, an unusually arid habitat.

DISTRIBUTION. All records come from a belt of semi-arid terrain stretching across Africa from Senegal to Kenya and thence into the Indian Desert.

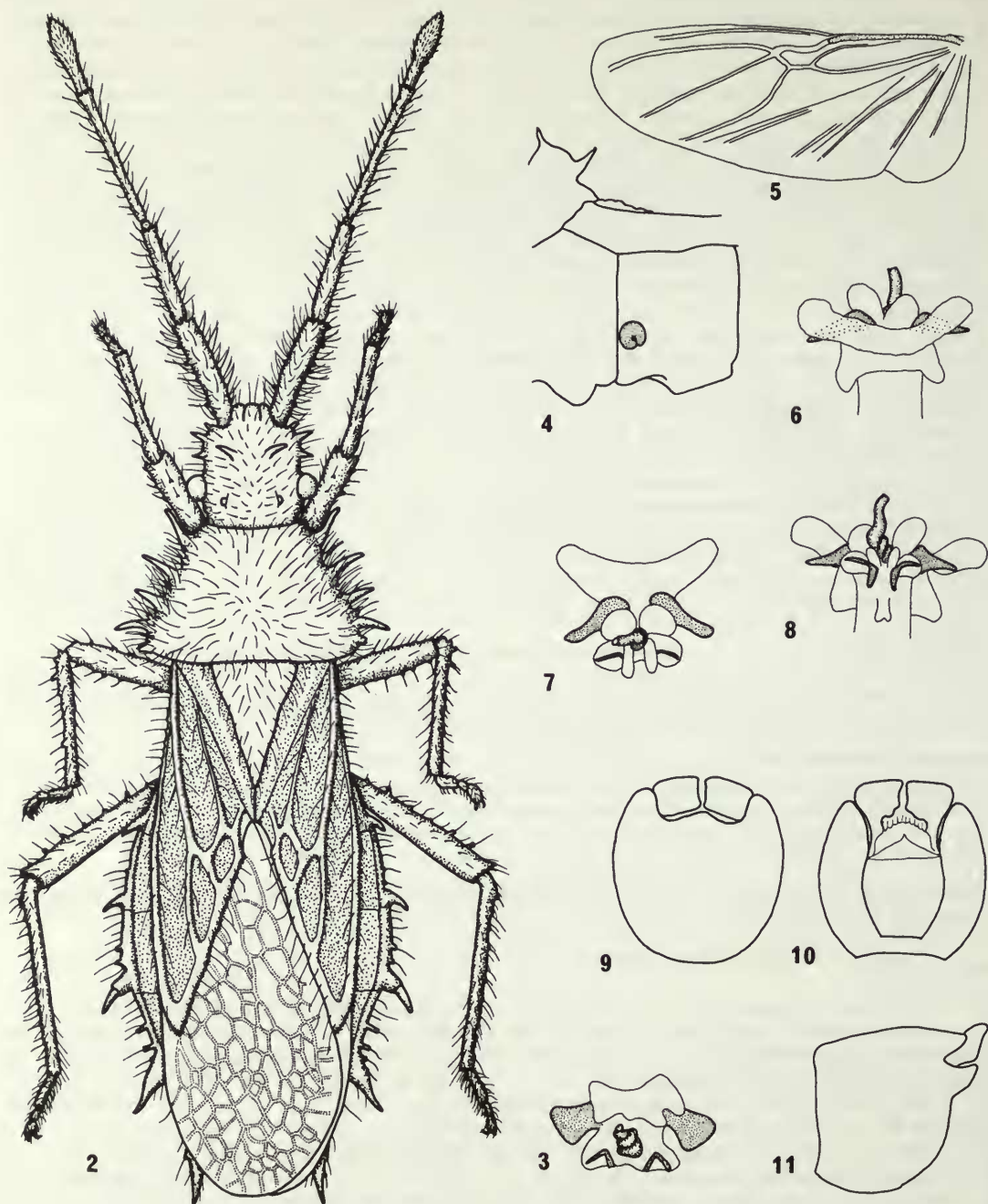
Key to species

- 1 Larger, length of male 7.2 mm or more, of female 7.7 mm or more; antennal segment III about 1.3 times as long as segment I. (Sudan, Nigeria, Kenya, Chad) *numidianus* (p. 160)
- Smaller, length of male 7.1 mm or less, of female 7.6 mm or less; antennal segment III between 1.1 and 1.2 times as long as segment I. 2
- 2 Posterior femur with low granules on dorsal surface. (Niger) *airensis* (p. 159)
- Posterior femur with outstanding tubercles on dorsal surface. 3
- 3 Spines of posterolateral angles of abdominal segments with weak sigmoid curvature, those of segment VII apically divergent. (Pakistan) *quadrocephalus* (p. 161)
- Spines of posterolateral angles of abdominal segments with stronger sigmoid curvature, those of segment VII apically convergent. 4
- 4 Larger, length of male 6.7–7.1 mm, of female 7.1–7.6 mm. (Senegal) *tomentosus* (p. 157)
- Smaller, length of female 6.4–6.7 mm, male unknown. (India) *delhiensis* (p. 160)

Risbecocoris tomentosus Izzard

(Figs 5–11)

Risbecocoris tomentosus Izzard, 1949: 479–480, pl. 7. Holotype ♂, SENEGAL (BMNH) [examined].



Figs 2-11 *Risbecocoris* species. 2, 3, *numidianus*: (2) dorsal view; (3) apical view of conjunctiva and vesica. 4, *quadrocephalus*, left metapleuron and surrounding area, showing scent-gland peritreme. 5-11, *tomentosus*: (5) metathoracic wing; (6) dorsal view of conjunctiva and vesica; (7) apical view of same; (8) ventral view of same; (9) posterior view of male genital capsule with parameres; (10) dorsal view of same; (11) lateral view of same.

Length: ♂, 6.7–7.1 mm; ♀, 7.1–7.6 mm.

Head quadrate, its dorsal spine-like tubercle shorter than diameter of eye; tubercles on lateral margin of antennifer about 4 in number, conspicuous, 2–4 times as long as wide. Antenna with first segment about 0.95 times as long as width of head including eyes; ratio of lengths of segments about 1.00:0.93:1.11:0.56. Tubercles of segment I about twice as long as wide, those of segment II about 1.5 times as long as wide. Ratio of lengths of rostral segments about 1.00:0.90:0.43:0.67. Apex of corium at rest reaching to basal quarter or basal third of laterotergite VI. Width across hemelytra at rest about 0.72 times abdominal width (excluding spines and tubercles) in male, 0.77 times in female; abdominal width about 0.38 times total body length. Posterolateral spines of abdominal sternites with strong sigmoid curvature, those of segment VII apically slightly convergent. Tubercles on margins of abdominal sternites 1.50–2.25 times as long as wide, absent from segments I–IV, absent or single on segment V, one or two (rarely absent) on segment VI, one or two on segment VII. All femora dorsally with two rows of short tubercles.

Conjunctiva (Figs 6–8) with low, M-shaped dorsomedian lobe; large, membranous, paired distal dorsolateral lobes; globose, membranous apical dorsal lobes, small, membranous, digitiform apical ventral lobes, globose, membranous distal ventrolateral lobes and a small, median, apically bifid ventromedian lobe. Distal ventrolateral lobes each supported by a slender sclerite along its distal wall, this sclerite projecting anteriorly as a narrowly triangular appendage, probably representing the totally sclerotized mesal lobe of the bilobed distal ventrolateral lobe. Distal dorsolateral lobes each with a strong, heavily sclerotized appendage arising near its base, adjacent to the apex of the respective wing of the ejaculatory reservoir complex, these sclerotized appendages not expanded apically.

Overall coloration appearing pale grey-brown to the naked eye. Colour of integument mid-brown; corium between veins, tibiae except for basal and apical annuli and spines of head yellow; lateral spines of pronotum yellow with apices black; apices of abdominal spines black. Forewing membrane slightly milky hyaline, veins white with occasional brown markings.

REMARKS. This species differs from *R. numidianus* in its smaller body size and less elongated antennal segments III and IV, as well as in the form of the sclerotized distal appendages of the conjunctiva; the other known African species, *R. airensis*, has the tubercles of the femora reduced to granules only about as high as wide on the anterior two pairs of legs and obsolete on the posterior pair, whereas in *tomentosus* these tubercles are distinctly longer than wide.

DISTRIBUTION. Known only from the type-locality in Senegal.

MATERIAL EXAMINED

Senegal: 1 ♂ (holotype), Bambey, 26.ix.1942 (*J. Risbec*) (BMNH).

Senegal: 5 ♂, 7 ♀ (paratypes), Bambey, 26.ix.1942 [Izzard, 1949, gives dates as ix.1940, 26.xi.1943 and 1946.] (BMNH).

Risbecocoris airensis Villiers

Risbecocoris airensis Villiers, 1950a: 323–324. Holotype ♀, NIGER (MNHN) [examined].

Length: ♂, unknown; ♀, 7.2 mm.

Very similar to *R. tomentosus*. First antennal segment as long as head. Ratio of lengths of antennal segments as 1.00:0.96:1.18:0.68. Tubercles on lateral margin of antennifer short, hidden among the pubescence. Dorsal spine-like tubercle of head much shorter than diameter of eye. Lateral spines of holotype all with apices broken (not short as stated in original description). Anterior and intermediate femora with two dorsal rows of hispid granules about as high as wide; posterior femora with granules obsolete. Apex of corium at rest just reaching base of laterotergite VI. Lateral margins of abdominal sternites I–V without long tubercles, VI with a tubercle on one side only, VII with a tubercle on both sides. Width of abdomen (excluding spines) 0.38 times body length; width across closed hemelytra 0.82 times abdominal width.

REMARKS. This species can be distinguished from others of the genus by the obsolete granulation of the posterior femora. The male is unknown; the holotype, stated to be of this sex in the original description, is in fact a female and it remains the only known specimen.

DISTRIBUTION. Aïr Mountains.

MATERIAL EXAMINED

Niger: 1 ♀ (holotype), Aïr Sud, Agadez, 525 m, 1–5.viii.1947 (*A. Villiers & L. Chopard*) (MNHN).

Risbecocoris numidianus sp. n.

(Figs 2, 3)

Length: ♂, 7.2–8.0 mm; ♀, 7.7–8.3 mm.

Head quadrate, dorsal spine-like tubercles longer than diameter of eye; antennifers laterally with 4–6 conspicuous tubercles up to 5 times as long as wide. Antennae with segment I 0.89–0.95 times as long as width of head including eyes; ratio of lengths of segments about 1.00:0.90:1.34:0.72. Tubercles of antennal segment I twice as long as wide or more, those of II up to twice as long as wide, those of III and base of IV about as long as wide. Ratio of lengths of rostral segments about 1.00:0.90:0.43:0.52.

All femora dorsally with two rows of tubercles about 2.5 times as long as wide, tubercles of tibiae about 1.5 times as long as wide. Apex of corium at rest reaching one-third or one-half of the way along laterotergite VI. Spines of posterolateral angles of abdominal segments with weak sigmoid curvature, apices of spines of segment VII weakly divergent. Numbers of tubercles present on lateral margins of abdominal sternites (excluding those on the spines themselves) varying from none to three on segments III and IV, one to three on V and VI and three to five on VII.

Conjunctiva (Fig. 3) differing from that of *tomentosus* in that apical dorsal and apical ventral lobes are absent and sclerotized appendages of distal dorsolateral lobes are broadly expanded apically.

Overall coloration dark grey-brown; integument generally dark brown; forewing membrane milky hyaline, its veins white with some brown streaks; tibiae, except for basal and apical annuli, yellow-brown; corium and clavus between veins pale brown; tubercles of head, abdomen and appendages pale brown; lateral spines of pronotum and abdomen pale brown, black-tipped; antennal segment IV very dark red-brown.

REMARKS. This is the largest species of the genus. It differs from all its relatives in the proportionately longer antennal segments III and IV and in the apically expanded distal sclerotized appendages of the conjunctiva; a distinctive species in an otherwise structurally rather uniform genus.

DISTRIBUTION. Widespread in the eastern Sahel.

MATERIAL EXAMINED

Holotype ♂, **Sudan**: Umm Berembeita [11°51' N, 30°40' E; spelt Umberumbeita on label], on ground, 22.iii.1931 (*F. G. S. Whitehead*) (BMNH).

Paratypes. **Sudan**: 1 ♀, Upper Nile Province, Steamer Falweil, swamps, 21.x.1933 (*A. D. Sheratt*) (BMNH); 2 ♀, U.N.P., Renk-Malakal, 2–4.i.1963 (*R. Linnavuori*) (BMNH and *R. Linnavuori* coll.); 1 ♂, 1 ♀, U.N.P., near Malakal, 5–20.i.1963 (*R. Linnavuori*); 1 ♂, Blue Nile, Ingessana Mts, 17–22.xi.1962 (*R. Linnavuori*); 1 ♂, Blue Nile, Umm Banein, 14.xi.1962 (*R. Linnavuori*) (all *R. Linnavuori* coll.). **Chad**: 1 ♂, Bas-Chari, near Fort-Lamy, Farcha, Forest, 8.viii.1963 (*J. Pericart*); 1 ♂, Bas-Chari, near Douggia, 13.viii.1963 (*J. Pericart*) (both *R. Linnavuori* coll.). **Nigeria**: 1 ♀, NW. State, Badeggi RRS, 19.iii.1972 (*J. T. Medler*) (University of Ibadan). **Kenya**: 1 ♀, Northern Frontier District, Wajeir, 24.i.1955, at light (*I. Lansbury*) (BMNH).

Risbecocoris delhiensis (Bose) comb. n.

Hoplolomia delhiensis Bose, 1946: 75–76. Holotype (sex unknown), INDIA: Delhi, ix.1937, at light (*Kerr*) [Institute of Agricultural Research, New Delhi] [not examined].

Length: ♂, unknown; ♀, 6.4–6.7 mm.

Very similar to *R. tomentosus*. Dorsal spine of head much shorter than diameter of eye; antennifers bearing four tubercles up to 3 times as long as wide on their lateral margins. Head slightly wider than long. First segment of antennae distinctly shorter than head, about 0.85 times as long as head width including eyes; ratio of lengths of antennal segments about 1.00:0.85:1.14:0.71. Tubercles of antennal segment I at most twice as long as wide, of segment II about 1.5 times as long as wide, of segment III about as long as wide. Ratio of lengths of rostral segments about 1.00:0.87:0.54:0.71. Femora with two dorsal rows of tubercles about 1.5 times as long as wide, tibiae with granules about as high as wide. Abdominal sternites with posterolateral spines stout and with rather strong sigmoid curvature, those of segment VII slightly convergent. Abdominal margins between the spines (which themselves bear tubercles) with tubercles up to 3 times as long as wide, borne singly on segments V–VII. Male unknown.

REMARKS. In the original description, the body length is given as 7 mm. This species is the smallest of the genus. The holotype, said to be in the Agricultural Research Institute at New Delhi, was not available for study; the paratype, allegedly deposited in the BMNH, was not found.

DISTRIBUTION. Eastern fringes of the Indian Desert.

MATERIAL EXAMINED

India: 2 ♀, Rajasthan, Pilani, ix.1965 (S. C. Goel) (BMNH).

***Risbecocoris quadrocephalus* Ahmad & Shadab**

(Fig. 4)

Risbecocoris quadrocephalus Ahmad & Shadab, 1969: 151–155. Holotype ♀, PAKISTAN: Karachi, Malir, on grass near lucerne field, 7.12.1967 (Fareed Ahmed) (Karachi University Natural History Museum) [not examined].

Length: ♂, 6.7 mm; ♀, 7.2–7.3 mm.

Similar to *R. delhiensis* but slightly larger and tubercles of body and appendages slightly longer. Length of antennal segment I divided by head width including eyes 0.88–0.92. Ratio of lengths of antennal segments I:II:III about 1.00:0.89:1.17; length of segment IV divided by that of segment I 0.66 (type) or 0.69 in female, 0.77 in male. Posterolateral spines of abdominal sternite VII slightly divergent apically. A full description of the female is given in the original description. Conjunctiva of male similar to that of *R. tomentosus* in all respects except that the membranous lobe of the distal ventrolateral lobes is smaller and the ventromedian lobe is somewhat larger.

REMARKS. The differences between the Asian species of *Risbecocoris* are very slight. Substantially more material would be required for a definitive treatment of these forms. The orientation of the spines of abdominal sternite VII can be seen in the figures given in the original descriptions of *delhiensis* and *quadrocephalus* and may be reliable characters for distinguishing these two species. The two described Asian species are structurally very similar to *tomentosus* and the Arabian specimen mentioned below.

DISTRIBUTION. Southern Pakistan.

MATERIAL EXAMINED

Pakistan: 1 ♂, 1 ♀, Sind, Mainiforest, grass, 7.xi.1975 (Ali Khan) [determined as *quadrocephalus* by Ahmad and Khan] (BMNH).

***Risbecocoris* sp.**

A single damaged specimen is mentioned here because of its biogeographical interest. It is a male from the island of Kamaran in the People's Democratic Republic of the Yemen ('South Yemen'), collected by G. C. Champion and deposited in the BMNH. It is 6.5 mm long; the length of its first antennal segment is 0.90 times the width of the head including the eyes and the second antennal segment is 0.87 times as long as the first; the remaining antennal segments are missing. Structurally, it is identical in almost every detail to *R. tomentosus*, including the detailed structure of the conjunctiva. The only differences apparent are the more slender vesica, the slightly smaller size and the slightly paler colour. The presence of a *tomentosus*-like form on an island near the Arabian shore of the Red Sea suggests that similar forms were and perhaps still are present throughout the northern edge of the Afrotropical Region and it forms a link between the Senegalese and Indo-Pakistan species.

HOPOLOMIA Stål

Hoplolomia Stål, 1873: 82, 84. Type-species: *Hoplolomia scabricula* Stål, by monotypy.

Body oblong, slightly depressed, connexivum greatly expanded, insect strongly spinose-tuberculate and hispid.

Head slightly longer than pronotum, tuberculate; eyes rather small. Antennifers strongly divergent, their outer apical processes directed obliquely forwards and downwards, slightly curved inwards apically. Antennal segment I clavate, tuberculate; segment III the longest, IV shortest, fusiform, specialized sensory area of IV occupying three-quarters of its length. Bucculae rather short, occupying somewhat less than one-third of ventral midline of head. Rostrum at rest reaching disc of metasternum; segments I and II subequal, IV shorter, III very short.

Pronotum (Fig. 12) moderately or weakly declivent, tuberculate; posterolateral angles somewhat produced, bearing spines; posterior margin almost straight, prescutellar spines absent. Scutellum equilateral, flat or weakly convex, apex slightly raised. Dorsal ridge of metathoracic peritreme reniform, prominent. Meso- and metasternum shallowly sulcate. Corium with costal margin shallowly concave,

apical margin straight, apex not produced. Metathoracic wing (Fig. 17) without antevannal vein. Femora and tibiae strongly granulate to tuberculate; posterior femur with small basal tubercle, distally (Fig. 14) with two major spines and an apical series of three or four.

Abdominal sternites with lateral margins tuberculate, posterolateral angles spinously produced (Fig. 13). Male genital capsule posteriorly emarginate, emargination filled by apices of parameres. Conjunctiva (Figs 15, 16) with ventral lobes denticulate. Spermatheca with bulb narrowly lunate, duct about twice as long as bulb, simply looped.

REMARKS. This small genus is characterized by the presence of a basal tubercle on the posterior femur in conjunction with the absence of an antevannal vein in the metathoracic wing and the strongly tuberculate and hispid body. *Hoplolomia delhiensis* Bose is transferred to *Risbecocoris* (p. 160).

DISTRIBUTION. Oriental region.

Key to species

- | | | |
|---|--|----------------------------|
| 1 | Scutellum flat. (India) | <i>campbelli</i> (p. 163) |
| – | Scutellum distinctly convex. (South East Asia) | <i>scabricula</i> (p. 162) |

Hoplolomia scabricula Stål

(Figs 12–14)

Hoplolomia scabricula Stål, 1873: 84. Holotype ♀, 'INDIA' (NR) [examined].

Length: ♂, ♀, 6.4 mm.

Length of antennal segment I about 0.93 times as long as width of head including eyes; ratio of lengths of antennal segments about 1.00:0.81:1.20:0.62 (female). Ratio of lengths of rostral segments about 1.00:0.96:0.38:0.67.

Pronotum (Fig. 12) moderately declivent, spines of posterolateral angles directed laterad and slightly anteriad, width across apices of spines divided by width of head including eyes 2.17–2.54. Scutellum weakly but distinctly convex.

Conjunctiva with dorsomedian lobe deeply cleft, appearing almost as a pair of membranous dorsolateral lobes; distal dorsomedian lobe small, conical, membranous; distal dorsolateral lobes rather globular, each with a finger-like, membranous lobe arising at junction with dorsomedian lobe and a short, curved, sclerotized appendage arising opposite apex of wing of ejaculatory reservoir apparatus and curving downwards; apical ventral lobes membranous, globular; distal ventrolateral lobes each divided into a slender, finger-like, membranous lobe adjacent to apical ventral lobe, a large, spreading membranous lobe and two small, membranous but minutely denticulate ventral lobes. Sclerotized parts of conjunctiva consisting of these denticles, appendages of distal dorsolateral lobes and cup-like sclerite protecting base of vesica. Vesica moderately long, its apex obliquely truncate. Ejaculatory reservoir apparatus with wings but without straps.

Head granulate, dorsally with some stout tubercles; antennae granulate, segment I also tuberculate. Pronotum punctate, granulate and tuberculate with a pair of large, somewhat irregular, whitish tubercles near midline between posterolateral angles. Scutellum granulate-punctate, margins tuberculate. Thoracic pleura granulate-punctate. Clavus and corium granulate and deeply punctate, costal margin of corium in basal half tuberculate. Femora and tibiae granulate and tuberculate. Connexivum granulate-punctate. Abdominal sterna granulate, lateral margins tuberculate.

Pubescence of body and appendages of moderate length, semidecumbent, with longer, suberect or erect hairs arising from larger tubercles of appendages and dorsal surface of body, hairs arising from the tubercles of head and pronotum particularly long and erect.

Colour rufous brown. Anterior midline of pronotum, margins of clavi adjacent to scutellum, distal veins of corium, abdominal spines, large areas of laterotergites IV and V and anterior and posterior margins of VI and VII and apical two-thirds of posterior femora conspicuously darker. Bases of femora, first segment of each tarsus, tibiae except for basal and apical annuli, most of clavus and basal half of corium and spots on darker parts of femora stramineous. Hemelytral membrane fuscous hyaline, some groups of somewhat reticulate veins dirty white, veins of anal angle conspicuously white, the membrane surrounding them not infuscate.

REMARKS. The type-locality is cited only as 'India Orientalis'; it is assumed here that it was in South East Asia rather than in the Indian subcontinent on the basis of the distribution of the other material seen.

DISTRIBUTION. South East Asia. Hsiao (1964: 252) records this species from Yunnan, China.

MATERIAL EXAMINED

South East Asia 'India orientalis': 1 ♀ (holotype) (*Stevens*) (NR).

Burma: 1 ♂, Bhamo, viii.1885 (*Fea*, ex *Distant* coll.) (BMNH). **Vietnam:** 1 ♀, Dalat, 6 km S., 1400–1500 m, 9.vi.1961 (*N. R. Spencer*) (BPBM). **Laos:** 1 ♂, 1 ♀, Wapikhamthong Prov., Khong Sedone, 18.ix.1965 (*native collector*) and 3.viii.1965 (*Rondon*) (BPBM).

***Hoplolomia campbelli* sp. n.**

(Figs 15–17)

Length: ♂, 5.7–5.8 mm; ♀, 6.7 mm.

Very similar to *H. scabricula* in size, form and colouring, including in the structure of the conjunctiva (Figs 15, 16) but body slightly more depressed and slightly narrower. Length of antennal segment I divided by width of head including eyes 0.85–0.93; ratio of lengths of antennal segments about 1.00:0.83:1.22:0.72. Pronotum shallowly declivent, width across apices of posterolateral spines divided by width of head including eyes 2.03–2.11. Scutellum flat.

REMARKS. Very similar to *H. scabricula*, this species is distinguished from it by the slightly more dorsoventrally flattened body, this difference being most apparent in the shallower slope of the pronotal disc and the flat, not convex, scutellum.

DISTRIBUTION. Southern India.

MATERIAL EXAMINED

Holotype ♂, **India:** Chikaballapura, iii.1915 (*T. V. Campbell*) (BMNH).

Paratypes. **India:** 1 ♂, Chikaballapura (*Campbell*), ii.1918; 1 ♀, Chikaballapura 11.i.1918 (BMNH).

***INDOLOMIA* gen. n.**

Type-species: *Indolomia conculata* sp. n.

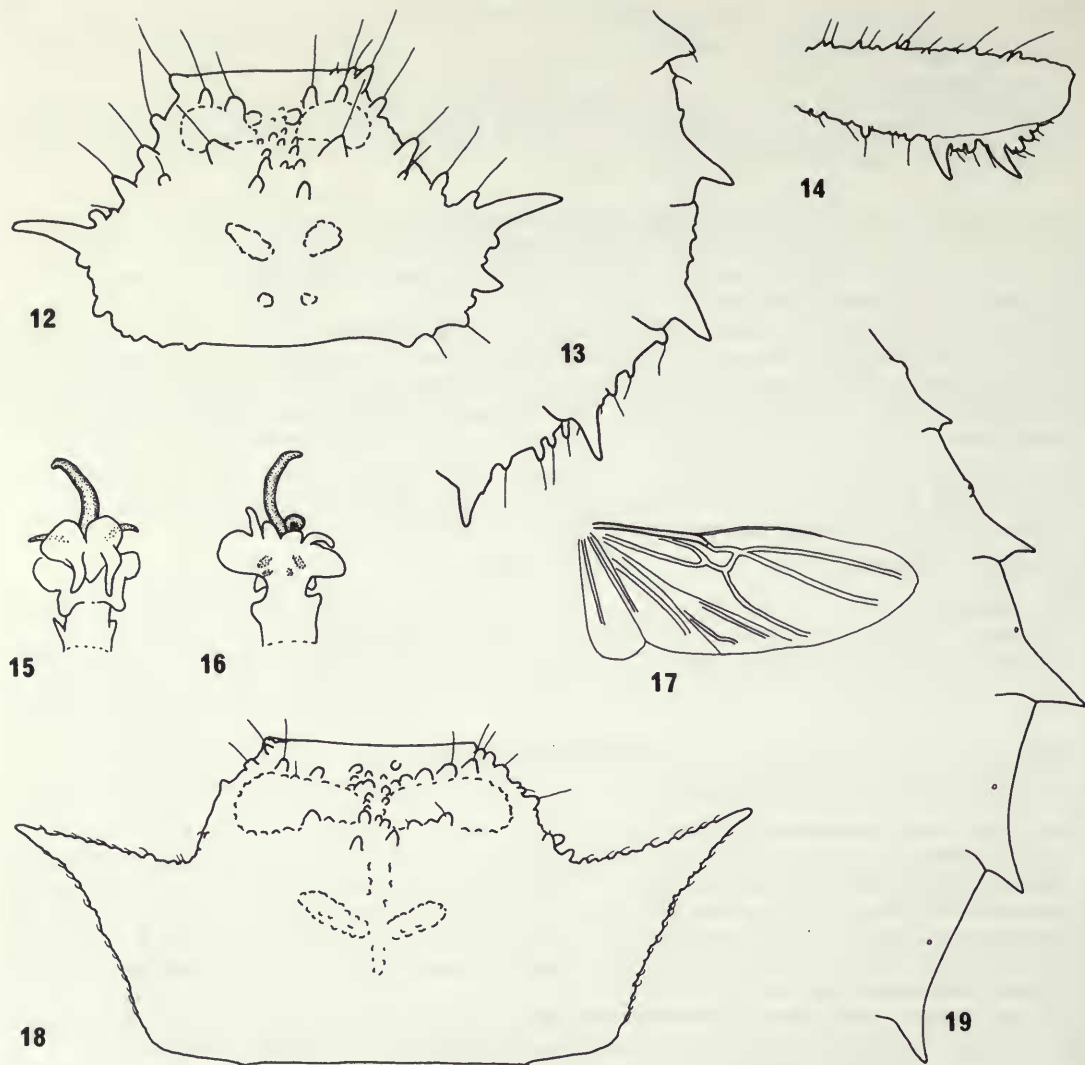
Body robust, connexivum widely expanded.

Head slightly longer than pronotum, with uniform, low granulation. Antennifers weakly divergent, outer apical processes triangular, apically curved inwards. Antennal segment I weakly clavate, slightly but distinctly shorter than head; segment III slightly shorter than I, II slightly shorter than III, IV shortest. Bucculae short, occupying only one-quarter of length of ventral midline of head. Rostrum with segment I reaching posteriorly almost to level of posterior margin of eye; segment II slightly shorter than I, III half as long as II, IV two-thirds as long as II.

Pronotum strongly declivent, its posterolateral angles strongly produced anterolaterally, posterolateral margin straight, without prescutellar spines; mostly rather weakly and uniformly granulate, with a pair of short, oblique ridges near midline between posterolateral angles, anterior and anterolateral margins and anterior half of midline with some larger and more prominent granules. Scutellum equilateral, convex, its apex slightly produced and swollen. Meso- and metasternum strongly sulcate longitudinally. Dorsal ridge of metathoracic peritreme shortly reniform. Corium with costal margin weakly concave and apical margin weakly convex, apex not produced. Metathoracic wing without antevannal vein. Anterior and intermediate femora each with a small subapical spine beneath; posterior femur with two or three major subapical spines and an apical series of tubercles and with a prominent basal tubercle. Posterior coxae separated by a space equal to about two-thirds of the width of a coxa.

Abdominal sterna III–VII with posterolateral angles triangularly produced, lateral margins with very obsolete granulation. Male genital capsule posteriorly emarginate, emargination filled by apices of parameres. Phallosome with a broad ventral sclerite, produced laterally, and two thin, longitudinal dorsal sclerites. Phallosome, conjunctiva and vesica subequal in length. Conjunctiva with sclerotized, ventrally directed distal dorsolateral appendages and a pair of sclerites protecting coiled base of vesica, otherwise completely membranous; dorsomedian lobe low, distal dorsomedian lobe conical, apical ventral lobes paired, weakly developed, distal ventrolateral lobes trilobed. Ejaculatory reservoir complex with wings well developed, straps absent.

REMARKS. This genus resembles *Hoplolomia* in that it lacks an antevannal vein in the metathoracic wing and has a basal tubercle on the hind femur. Because of the shape of the pronotum, the short pubescence and the absence of prominent tubercles from most of the body surface and appendages, it superficially



Figs 12-19 12-14, *Hoplolomia scabricula*: (12) dorsal view of pronotum; (13) ventral view of abdominal margin; (14) dorsal view of apical half of posterior femur. 15-17, *H. campbelli*: (15) dorsal view of conjunctiva and vesica; (16) ventral view of same; (17) metathoracic wing. 18, 19, *Indolomia conculata*: (18) dorsal view of pronotum; (19) ventral view of abdominal margin.

resembles some *Myla* species but the differences in the form of the male genitalia show that the two genera are not closely related.

DISTRIBUTION. A single species, in southern India.

***Indolomia conculata* sp. n.**

(Figs 18, 19)

Length: ♂, 7.8 mm; ♀ unknown.

Head as long as its width including eyes. Length of antennal segment I divided by head width including eyes 0.89. Ratio of lengths of antennal segments as 1.00:0.89:0.94:0.83. Specialized sensory setae

occupying about nine-tenths of length of segment IV. Antennae without prominent granules or tubercles. Rostral segment I 0.66 times as long as width of head including eyes; ratio of lengths of rostral segments as 1.00:0.89:0.45:0.64.

Pronotum (Fig. 18) with posterolateral angles terminating in short spines; width across apices of spines 2.43 times width of head including eyes. Legs moderately long, posterior tibia 0.96 times as long as posterior femur. Left femur of holotype with three major spines, the second half as long as the third and twice as long as the first, right femur with only two major spines, similar to second and third of left femur; an apical series of three spines present on both femora, one tubercle and two granules present between last and penultimate spines, a few granules present on rest of apical half of ventral surface of both femora. Scutellum, clavus and corium strongly punctate and weakly granulate throughout. Abdominal sterna with posterolateral angles triangularly produced but not drawn out into spines (Fig. 19). Pubescence of body, antennal segment I and most of femora short, semidecumbent; that of rest of antennae, of tibiae and tarsi and parts of femora short or rather short, suberect; front of head and some large granules of pronotum with a few longer, erect hairs.

Colour various shades of brown. Head with midline and a U-shaped stripe adjacent to eyes and interrupted by ocelli conspicuously paler. Pronotum with midline and posterior disc conspicuously darker, the two oblique ridges of posterior disc conspicuously paler. Femora piceous with stramineous spots. Tibiae stramineous with basal and apical annuli piceous. Tarsi piceous, first segment dorsally stramineous. Connexivum banded pale and dark brown, abdominal dorsum rufous brown, anteriorly and anterolaterally piceous. Thoracic sterna piceous. Abdominal sterna mottled pale brown and piceous, piceous markings tending to form five longitudinal stripes. Hemelytral membrane fuscous hyaline; veins darker brown, interrupted by milky spots; anal angle of membrane, including veins, milky.

REMARKS. Only the holotype, which is complete but slightly crushed, is known.

MATERIAL EXAMINED

Holotype ♂, **India**: Anaimalai Hills, Cinchuna, 3500 ft [1067 m], v.1976 (*T. Nathan*) (BMNH).

PARAMYLA Linnavuori stat. n.

Myla (*Paramyla*) Linnavuori, 1971: 177–178. Type-species: *Myla suspecta* Schouteden, by original designation.

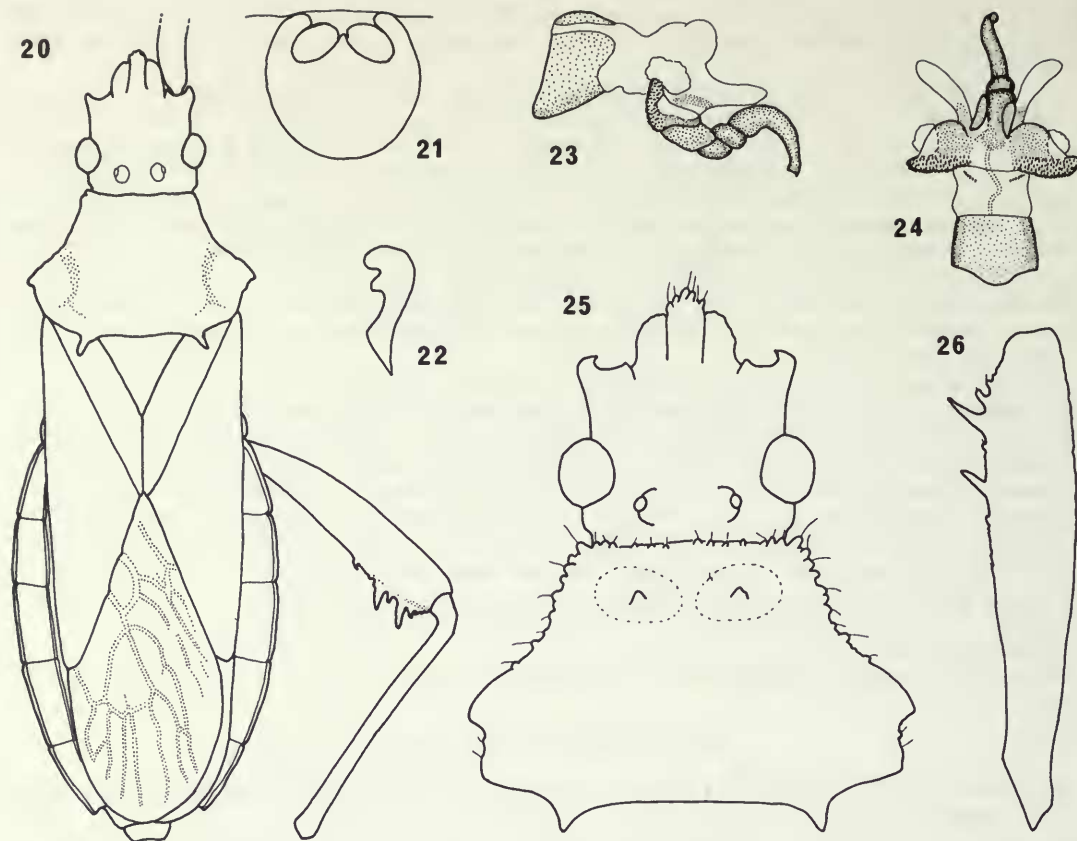
Body depressed, narrowly ovate, not conspicuously tuberculate or hispid, connexivum moderately expanded.

Head slightly shorter than pronotum, slightly longer than antennal segment I, dorsally granulate with two conspicuous, smooth, non-granulate lines arising between ocelli and diverging anteriorly, reaching half-way to antennifers, and a shorter, smooth line along outer margin of each ocellus. Antennifers divergent, outer apical processes of antennifers short, porrect. Antennal segment I longest, weakly but rather abruptly clavate, II shortest, III next shortest; I–III densely granulate, granules of I larger; IV with specialized sensory area occupying between two-thirds and four-fifths of its length. Bucculae occupying about one-quarter of ventral midline of head. Rostrum with segment I distinctly longest, II longer than IV, III shortest, apex of rostrum at rest reaching to disc of mesosternum.

Pronotum shallowly declivent, posterolateral angles scarcely prominent, bearing a short, triangular tooth, lateral margins granulate, disc granulate to tuberculate, posterior margin weakly convex, prescutellar spines well developed. Scutellum flat, equilateral, apex slightly or strongly elevated. Mesosternum sulcate, metasternum convex with slight longitudinal groove in anterior one-third. Dorsal ridge of metathoracic peritreme reniform. Metathoracic wing without antevannal vein. All femora granulate, anterior two pairs with or without a subapical spine beneath, posterior femur with a moderately well-developed basal tubercle and with two or three major subapical spines with only granules between them and an apical series of two to four tubercles. Posterior tibiae more than 0.90 times length of posterior femora.

Abdominal sternites with their posterolateral angles not produced, their densely granulate lateral margins forming a single, smooth curve. Genital capsule (Fig. 21) short, posteriorly emarginate, emargination filled by apices of parameres (Fig. 22).

REMARKS. Members of this genus are readily recognized among tropical Pseudophloeinae by their strongly depressed and largely non-tuberculate body. They have more the appearance of some Palaearctic genera, but differ from these in the absence of an antevannal vein in the metathoracic wing. Linnavuori (1971) included *Myla niokoensis* Schouteden in his new subgenus *Paramyla* but the male genitalia of *niokoensis* are typical of the genus *Myla* and the resemblances between *niokoensis* and *suspecta* are confined to the



Figs 20–26 *Paramyla* species. 20, *australis*, dorsal view of body with hemelytra at rest and posterior femur and tibia. 21–26, *suspecta*: (21) posterior view of male genital capsule with parameres; (22) dorsomedial view of left paramere; (23) lateral view of phallosome, conjunctiva and vesica; (24) ventral view of same; (25) dorsal view of head and pronotum; (26) dorsal view of posterior femur.

superficial characters of a lack of abdominal spines, very short pronotal spines and very short pubescence.

DISTRIBUTION. Mountainous regions of central Africa and South Africa.

Key to species

- 1 Pronotum with prescutellar spines broad, triangular; hairs of pubescence longer than distance between adjacent hair insertions. (Mountains of central Africa) ***suspecta*** (p. 166)
- Pronotum with prescutellar spines slender; hairs of pubescence shorter than distance between adjacent insertions. (South Africa) ***australis*** (p. 167)

Paramyla suspecta (Schouteden) **comb. n.**

(Figs 21–26)

Myla suspecta Schouteden, 1938: 294. Holotype ♂, ZAIRE (MRAC) [examined].

Myla (Paramyla) suspecta (Schouteden); Linnavuori, 1971: 177–178.

Length: ♂, 7.4–7.6 mm; ♀, 7.7–8.0 mm.

Antennal segment I with two different sizes of granulation, its length approximately equal (0.89–1.01 times) to width of head including eyes; ratio of lengths of antennal segments about 1.00:0.67:0.81:0.85;

specialized sensory area of segment IV occupying about four-fifths of its length. Ratio of lengths of rostral segments about 1·00:0·80:0·45:0·70.

Pronotum (Fig. 25) with disc granulate; lateral margins shallowly concave; posterolateral angles scarcely elevated above general level of posterior disc, width across apices of blunt posterolateral spines 1·73–1·82 times width of head including eyes; prescutellar angles with triangular spines. Scutellum with apex slightly elevated. Anterior and intermediate femora without subapical spines or tubercles, posterior femur (Fig. 26) with two major spines, the proximal one about half as long as the other, with only granules between them, and an apical series of two or three tubercles. Corium with costal margin markedly convex.

Male with phallosome short, consisting of a single ventral sclerite extending laterally almost to meet two rather less well-sclerotized dorsal sclerites. Conjunctiva (Figs 23, 24) with dorsomedian lobe large, its lateral angles prominent, distal dorsomedian lobe low, scarcely developed, distal dorsolateral lobes finger-like, wholly membranous and without sclerotized appendages, apical ventral lobes absent, distal ventrolateral lobes each divided into three: a dorsal, wholly membranous part, a ventral, largely sclerotized part, denticulate along its anterior edge, and a narrow, denticulate lobe situated anterior and medial to the two larger parts. Vesica stout, rather long, protected at base by a pair of sclerites. Ejaculatory reservoir complex with wings long, L-shaped, straps absent.

Head granulate throughout, granules larger along midline of tylus, gular region punctate. Antennal segment I with small, densely packed granules and some larger, outstanding granules, segments II–III with very small granules. Pronotal disc punctate, with scattered granules, anterior half with some larger granules or low tubercles, lateral margins with larger granules; scutellum weakly granulate-punctate; thoracic sterna and pleura punctate; femora and tibiae minutely granulate. Clavus and corium punctate throughout, punctures of clavus larger, of apex of corium smaller than average size of those on disc of corium, veins of clavus and corium granulate. Abdominal sternites and laterotergites minutely granulate, laterotergites also minutely punctate.

Insect clothed in short, semidecumbent pubescence, the hairs longer than the distances between their insertions; tubercles and larger granules of head and pronotum with longer, erect hairs.

Colour largely mid-brown. Membrane of hemelytra infusate between veins, veins brown, with short, paler interruptions. Antennal segment IV, femora, especially posterior pair, and mesosternum dark brown to black; tibiae, except for basal and apical annuli, paler brown.

REMARKS. This species seems to be one of the tropical Pseudophloeinae most highly adapted for life on the ground. The unusual form of the conjunctiva, lacking apical ventral lobes and sclerotized appendages to the distal dorsolateral lobes and with very strongly developed distal ventrolateral lobes, is presumably characteristic for the genus, and sets it somewhat apart from other genera.

DISTRIBUTION. Highlands of central Africa.

MATERIAL EXAMINED

Zaire: 1 ♂ (holotype), Ituri, Nioka, vii.1934 (*J. V. Leroy*) (MRAC).

Zaire: 4 ♂, 4 ♀, data as holotype except that one male and two females have fuller date: 7.vii.1934 (probably all paratypes); 1 ♂, Ituri, de Buba à Petro (Nizi), 23.iii.1929 (*A. Collart*) (paratype); 1 ♀, Kibali-Ituri, Nioka, xii.1952 (*J. Hecq*) (MRAC). **Malawi:** 1 ♂, Masuku Mts, 6000–7000 ft [1800–2100 m], vii.1896 (*A. Whyte*) (BMNH).

Paramyla australis sp. n.

(Fig. 20)

Length: ♂, unknown; ♀, 7·5 mm.

Antennae with segment I proportionately longer and segment IV much shorter than in *P. suspecta*, ratio of lengths of segments as 1·00:0·71:0·87:0·65; granulation of segment I uniform, segment IV with junction of specialized sensory area and area of normal pubescence oblique, specialized area occupying between three-quarters and two-thirds of its length. Body form (Fig. 20) slightly narrower than that of *suspecta*; width of pronotum (Fig. 20) across apices of the blunt, triangular posterolateral spines 1·72 times width of head including eyes; prescutellar spines slender; posterolateral angles rather strongly elevated above level of posterior disc; lateral margins strongly concave. Scutellum with apex strongly raised. Corium with costal margin only weakly convex. Intermediate femur with a small subapical spine beneath; posterior femur (Fig. 20) with three major spines, of which the first is very small and the second about three-quarters the length of the last, a single tubercle between these two biggest spines and an apical series of four tubercles.

Sculpture of body, especially pronotum, rather more pronounced than in *suspecta*; pronotal disc tuberculate. Pubescence of body and appendages very short, semidecumbent, white, the hairs distinctly

shorter than the distances between their insertions; tarsi and apices of tibiae with longer, suberect pubescence but body without longer, suberect hairs.

REMARKS. This species diverges less from the typical body form of the subfamily than does its congener; the body is less flattened and there are more femoral spines. In contrast, the pubescence is abnormally short in the new species.

DISTRIBUTION. Known only from the type-locality in South Africa.

MATERIAL EXAMINED

Holotype ♀, **South Africa**: Cape Province, Cape Peninsula, Red Hill, 30.i.1968 (J. A. & S. Slater, T. Schuh, M. H. Sweet) (J. A. Slater collection).

PSILOLOMIA Breddin

Psilolomia Breddin, 1909: 292. Type-species: *Psilolomia brevitibialis* Breddin, by monotypy.

Neohoplolomia Distant, 1913: 284. Type-species: *Neohoplolomia typica* Distant, by monotypy. **Syn. n.**

Psilocoris Hsiao, 1964: 251, 259. Type-species: *Psilocoris clavipes* Hsiao, by original designation. **Syn. n.**

Body oblong, not depressed, connexivum rather narrowly to moderately expanded, body not conspicuously spinose, tuberculate or hairy.

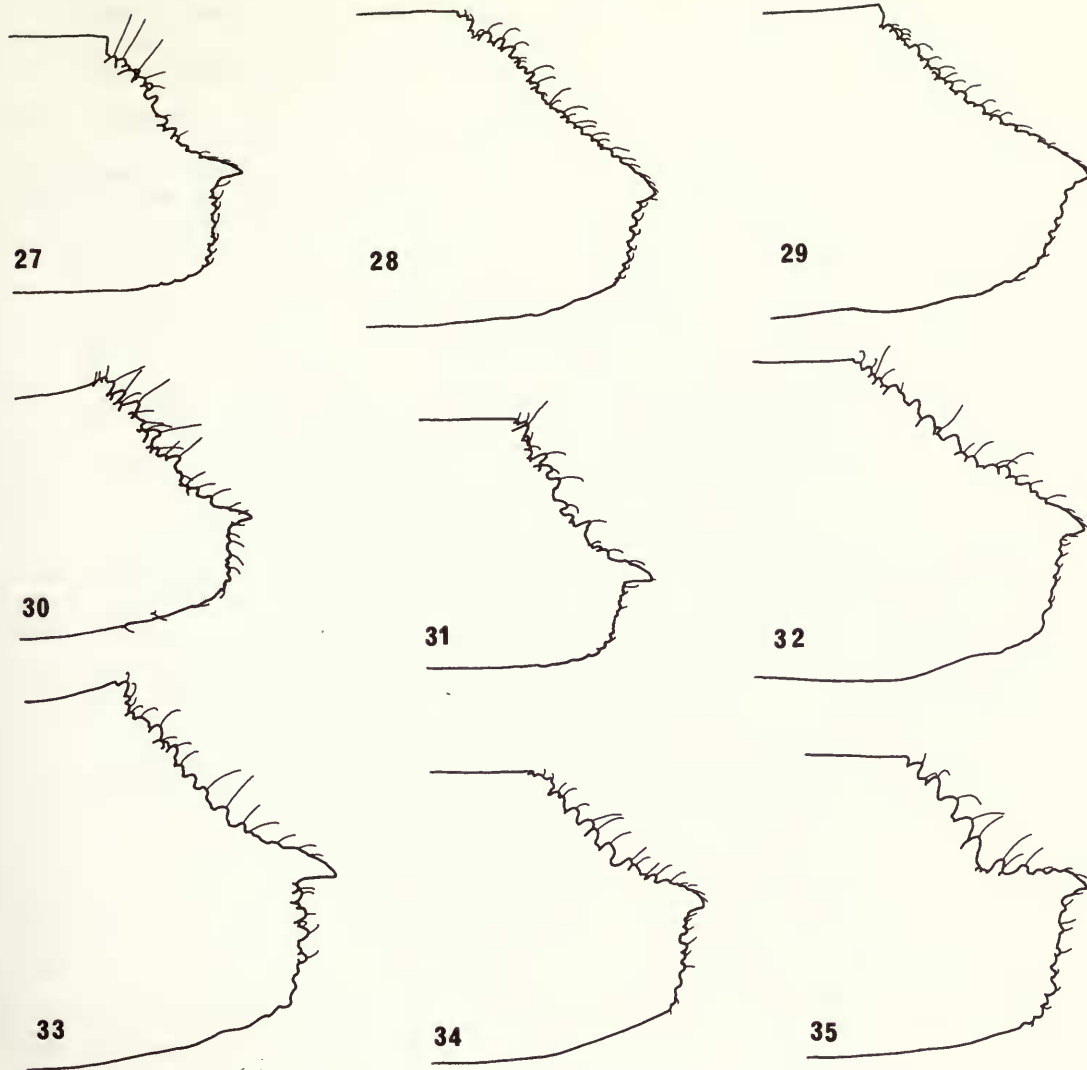
Head about as long as pronotum, dorsally granulate to rather weakly tuberculate. Antennifers divergent, their outer apical processes short, broad, porrect. Antennae with segment I very weakly clavate, granulate, without conspicuously outstanding granules or tubercles; segments II and III never of conspicuously unequal length, minutely granulate. Bucculae occupying about one-quarter of ventral midline of head. Rostrum with segment I much the longest, II to IV subequal in length, apex of IV reaching to meso-metasternal suture.

Pronotum moderately declivent, its posterolateral angles not or rather weakly elevated and not or rather weakly produced laterally, posterolateral spines short, blunt or acute and arising abruptly from the angles, directed laterally; posterior margin straight, without humeral spines; disc and lateral margins with large granules or tubercles. Scutellum flat or weakly convex, equilateral, anterior angles prominent, apex elevated as a minute, whitish blob. Mesosternum shallowly sulcate; metasternum almost flat to distinctly convex, anteriorly concavely emarginate. Metathoracic peritreme (Fig. 38) with dorsal ridge bilobed, the anterior lobe much the larger. Clavus and corium punctate throughout, corium less heavily so apically and with apex not produced. Antevannal vein present in metathoracic wing (Fig. 39) but sometimes weak. Anterior and intermediate femora with zero to two small subapical spines beneath, posterior femur with three major subapical spines, some smaller ones and an apical series; tubercle at base of posterior femur small, sometimes obsolete. Posterior coxae not approximated.

Abdominal sterna III–VII with posterolateral angles not or slightly produced (maximum development in *P. brunneofusca*, Fig. 42). Spermatheca with bulb lunate, duct short, not convoluted. Male genital capsule posteriorly emarginate, emargination filled by apices of parameres. Conjunctiva with dorsomedian lobe large, distal dorsomedian lobe smaller, both membranous; distal dorsolateral lobes slender, their posterior faces supported for much or, usually, all of their length by sclerites continuous with or articulating with wings of ejaculatory reservoir, which lacks straps; no sclerites protecting base of vesica; apical ventral lobe obsolete or transverse, sometimes weakly bilobed but never divided into two globular lobes; distal ventrolateral lobes membranous; ventral wall of conjunctiva with a pair of posteriorly diverging, toothed, sclerotized strips, these weakly developed or absent in the smallest three species.

Pronotum, scutellum and thoracic pleura granulate-punctate, veins of hemelytra with occasional small granules, femora, tibiae, abdominal sternites and laterotergites granulate. Pubescence colourless or amber, simple, mostly rather short, semidecumbent to suberect, some species with long, erect hairs on pronotum and dorsum of head; pubescence never scale-like or tomentose.

REMARKS. This, one of the largest genera of the tribe, lacks any striking distinguishing features. The type-species of *Psilolomia* and *Neohoplolomia* are synonymized here. *P. brevitibialis*, the type-species of *Psilolomia*, is unique in that its vesica is about twice as wide as those of the other species examined and the distal dorsolateral lobes of the conjunctiva are sclerotized for only about half their length. It shares with only *P. parva* both the absence of ventral, toothed, sclerotized strips from the conjunctiva and the possession of an antennal segment II that is shorter than segment III; these are the only two species in which some of the dorsal granules of the head are developed into tubercles that are higher than wide. The conjunctiva of *P. amphrysia*, the third small species, has very weakly developed ventral sclerotized strips and thus forms a link between the other two and the large species of the genus. These differences do not seem of sufficient value to warrant the separation of *P. brevitibialis* or of *P. brevitibialis* plus *P. parva* from



Figs 27–35 *Psilolomia* species, outline dorsal view of right half of pronotum of 27, *amphrysia*; 28, *nigeriensis*; 29, *lamottei*; 30, *brevitibialis*; 31, *parva*; 32, *vulgaris*; 33, *brunneofusca*; 34, *steeleae*; 35, *lata*.

the remaining species at the generic level. Linnavuori (1970) placed the two African species known to him in *Mevaniomorpha*, which is undoubtedly close to *Psilolomia* and might be regarded as a derivative of it with more pronounced pronotal and abdominal spines.

DISTRIBUTION. Afrotropical and Oriental regions; wholly continental, with no insular records.

Key to species

- 1 Side of head above each antennifer with a large tubercle almost as large as an eye (Figs 36, 37).
(India)..... **dispar**(p. 174)
- Head without such tubercles. 2
- 2 Posterolateral angles of pronotum bearing acute spines that are longer than their basal width
(Figs 1, 27, 30, 31, 33)..... 3
- Posterolateral angles of pronotum with usually blunt spines no longer than their basal width
(Figs 28, 29, 32, 34, 35)..... 7

- 3 Larger insects: length of male 7.6 mm or more; length of female 7.9 mm or more. Antennal segment I as long as or longer than width of head including eyes. 4
- Smaller insects: length of male 7.2 mm or less; length of female 7.6 mm or less. Antennal segment I not as long as width of head including eyes. 5
- 4 Coloration ochreous yellow. (India, Sri Lanka) *pundaloyae* (p. 177)
- Coloration ferruginous or fuscous brown. (S. China to Malaya) *brunneofusca* (p. 177), *clavipes* (p. 178)
- 5 Antennal segment II longer than segment III. (Africa) *amphrysia* (p. 170)
- Antennal segment II shorter than segment III. (Asia) 6
- 6 Pronotum (Fig. 31) with lateral margins distinctly concave; abdominal sternites V and VI with posterolateral angles produced into short, acute spines. (Laos, Thailand) *parva* (p. 174)
- Pronotum (Fig. 30) with lateral margins almost straight; abdominal sternites V and VI with posterolateral angles right-angled. (India, Sri Lanka) *brevitibialis* (p. 172)
- 7 Pronotum with lateral margins (Figs 32, 34, 35) bearing coarser tubercles and granules and longer and straighter pubescence. (Asia) 8
- Pronotum with lateral margins (Figs 28, 29) bearing finer tubercles and shorter, more curved pubescence. (Africa) 10
- 8 Pronotum with lateral margins (Fig. 35) strongly concave just anterior to posterolateral angles. (Thailand) *lata* (p. 179)
- Pronotum with lateral margins (Figs 32, 34) weakly concave 9
- 9 Antennal segment I longer than width of head including eyes. General coloration ferruginous brown. (Burma) *steleae* (p. 178)
- Antennal segment I shorter than width of head including eyes. General coloration ochreous yellow. (India, Sri Lanka) *vulgaris* (p. 175)
- 10 Antennal segment I not longer than width of head including eyes. Pronotum with lateral margins (Fig. 28) almost straight. (Nigeria, Central African Republic) *nigeriensis* (p. 171)
- Antennal segment I longer than width of head including eyes. Pronotum with lateral margins (Fig. 29) distinctly concave. 11
- 11 Larger insects: length of male 9.9 mm. (Sudan) *ferruginea* (p. 172)
- Smaller insects: length of male 9.0 mm; length of female 9.7 mm. (Guinea, Nigeria) *lamottei* (p. 171)

***Psilolomia amphrysia* (Linnavuori) comb. n.**

(Figs 27, 49)

Mevaniomorpha amphrysia Linnavuori, 1970: 43–45. Holotype ♂, IVORY COAST: Lamto, Toumodi, 1–5.vi.1962 (Gillon) (R. Linnavuori coll.) [not examined].

Length: ♂, 6.6–7.2 mm; ♀, 7.2–7.6 mm.

Head dorsally granulate. Antennifers distinctly but not strongly divergent. Length of antennal segment I divided by width of head including eyes 0.88–1.00. Ratio of lengths of antennal segments in male about 1.00:0.78:0.73:0.82, in female about 1.00:0.77:0.71:0.74. Ratio of lengths of rostral segments in male about 1.00:0.65:0.50:0.73, in female about 1.00:0.58:0.52:0.61.

Pronotum (Fig. 27) with lateral margins slightly concave, bearing small tubercles that are slightly longer than wide; posterolateral spines acute, longer than their basal width; width across apices of spines divided by width of head including eyes 1.80–2.07. Metasternum moderately convex. Anterior and intermediate femora with or without one small, subapical spine beneath, posterior femur with three major spines, three or four minor spines between the second and third and an apical series of four. Length of posterior tibia about 0.7 times length of posterior femur.

Abdominal sternites III–VII with posterolateral angles acute, slightly prominent. Conjunctiva with distal dorsolateral lobes (Fig. 49) short, sclerotized throughout their length; ventral sclerotized strips weakly developed.

Pubescence of most of body and of hemelytra short, curved, semidecumbent; that of antennae and legs straighter, suberect; head also with some longer, suberect hairs arising from tubercles and larger granules; declivent part of pronotum also with pubescence of erect hairs about as long as diameter of an eye.

Colour sordid yellow, apical half of posterior femur heavily marked piceous; scattered, small piceous markings of greater or less extent present elsewhere on body and appendages, especially abdominal laterotergites and sternites. Granules of appendages usually piceous.

REMARKS. This is the smallest of the African species and the only one of them with long pronotal pubescence (about as long as diameter of an eye); its pronotal posterolateral spines are longer than those of

other African species. It differs from the two small Asian species in having the second antennal segment longer than the third, not shorter.

DISTRIBUTION. West Africa and Zambia.

MATERIAL EXAMINED

Ivory Coast: 1 ♂, Lamto, 3.iii.1967 (*Gillon*), 1 ♀, Lamto, 7–10.ii.1962 (*Gillon*) (R. Linnavuori coll; paratypes); 6 ♂, Lamto, various dates 26.vi.1962 to 21.vii.1964 (*Gillon*) (BMNH). **Nigeria:** 1 ♂, Samaru, Zaria, in dry plant detritus, 30.i.1955 (*M.G.E.*); 1 ♂, 1 ♀, Ilorin, under dead leaf, 19.iii.1955 (*M.G.E.*); 3 ♀, Gombe, Matzoro Lakes, i.1929 (*Lloyd*) (BMNH). **Zambia:** 1 ♂, Chisinga Plateau, Kalungwisi District, 4500 ft (1350 m), 25.ix.1908 (*Neave*) (UM).

***Psilolomia nigeriensis* sp. n.**

(Figs 28, 57)

Length: ♂, 7.9–9.3 mm; ♀, 8.7–9.1 mm.

Head dorsally granulate. Antennifers distinctly but not very abruptly divergent. Length of antennal segment I divided by width of head including eyes 0.86–1.00. Ratio of lengths of antennal segments in northern males about 1.00:0.89:0.78:0.93; in southern males about 1.00:0.93:0.80:0.82; in northern females about 1.00:0.93:0.82:0.86; in southern females about 1.00:0.93:0.82:0.82. Ratio of lengths of rostral segments about 1.00:0.57:0.58:0.55.

Pronotum (Fig. 28) with lateral margins very shallowly concave, almost straight, bearing small granules; posterolateral angles each with a short, triangular spine; width across apices of spines divided by width of head including eyes 1.94:2.02. Metasternum rather strongly convex. Anterior and intermediate femora each without or with one small, subapical spine beneath; posterior femur with three major spines, rarely with a small spine preceding them, three or four minor spines between the penultimate and last major spines and an apical series of four or five. Length of posterior tibia divided by length of posterior femur 0.82–0.92.

Abdominal sternites III–VII with posterolateral angles acute and slightly prominent. Conjunctiva with ventral toothed sclerotized strips well-developed, distal dorsolateral lobes (Fig. 57) sclerotized throughout their length but less strongly so apically and ventrally, dorsomedian lobe bearing a narrow, membranous, apically bifid, median process; vesica longer than in any other species of the genus.

Pubescence of most of body and of hemelytra short, curved, semidecumbent; of antennae and legs suberect, longer and more erect ventrally on femora; head with uniform, short, semidecumbent pubescence; declivent part of pronotum with longer, less curved, suberect pubescence distinctly shorter than diameter of eye.

Colour sordid yellow – ochreous, usually with a slight ferruginous tinge and with piceous markings along apical margin of corium, thoracic and abdominal sterna and laterotergites and apical half of posterior femur; all tibiae with basal and apical annuli fuscous.

REMARKS. This species differs from the other African species in its almost straight lateral pronotal margins. It is very similar to the Asian *P. vulgaris* but lacks suberect pubescence along the midline of the head and differs in the shape of the sclerotized distal dorsolateral lobes of the conjunctiva.

DISTRIBUTION. West Africa.

MATERIAL EXAMINED

Holotype ♂, **Nigeria:** U.C. Ibadan, on leaf of *Vigna unguiculata*, 31.i.1955 (*G. H. Caswell*) (BMNH). **Paratypes.** **Nigeria:** 1 ♂, data as holotype (Ibadan University); 1 ♀, Enugu, 30.x.1955 (*Bechyne, Exped. Mus. G. Frey*); 1 ♂, 1 ♀, Zaria, Samaru, at light, 12.vii.1966 (*J. Deeming*); 1 ♂, 2 ♀, Samaru, Zaria, in dry plant detritus, dry grass and plant bases, 30.i.1955 (*M.G.E.*) (BMNH). **Central African Republic:** 1 ♂, Bambari, u.v., 1964 (*G. Pierrard*) (MRAC).

***Psilolomia lamottei* (Villiers) comb. n.**

(Figs 29, 54)

Acanthomia lamottei Villiers, 1950b: 654–655. Holotype ♀, GUINEA (MNHN) [examined].

Length: ♂, 9.0 mm; ♀, 9.7 mm.

Head dorsally granulate. Antennifers strongly divergent. Length of antennal segment I divided by width of head including eyes about 1.1. Ratio of lengths of antennal segments about 1.00:0.84:0.78:0.76. Ratio of lengths of rostral segments about 1.00:0.58:0.61:0.58.

Pronotum (Fig. 29) with anterolateral margins concave, granulate; posterolateral angles prominent, bearing broadly triangular posterolateral spines; width across apices of spines divided by width of head including eyes 2.05 in male, 1.93 in female. Metasternum rather strongly convex. Anterior femur with one, minute, subapical spine beneath, intermediate femur with one small spine, posterior femur with three major spines (preceded by a small spine in holotype) with three minor spines between the penultimate and last major spines and an apical series of four; tubercle at base of posterior femur obsolete. Length of posterior tibia divided by length of posterior femur 0.84–0.85.

Abdominal sternites V and VI with posterolateral angles slightly prominent, slightly more acute than right-angled; those of VII angled at about 85°, slightly prominent. Vesica long and slender; conjunctiva with ventral toothed strips well developed; distal dorsolateral lobes (Fig. 54) sclerotized throughout, not apically angled or expanded.

Pubescence rather short, suberect to semidecumbent, of uniform length, no erect hairs present even on dorsal midline of head.

Coloration of holotype from Guinea sordid yellow with slight rufous tinge, antennal segment IV, tubercles of all appendages, basal annulus of posterior tibia and, less conspicuously, of other tibiae, meso- and metasterna and extensive mottling on abdominal sterna, laterotergites and apical half of posterior femur piceous or black. Male from Nigeria generally ferruginous without black or piceous markings except for those of abdomen and thoracic sterna.

REMARKS. There is a close resemblance in structure, though not in colour, between the two specimens examined. This species resembles *P. ferruginea* in having the first antennal segment longer than the width of the head across the eyes and in the prominent posterolateral angles of the pronotum, but it is smaller and has fewer minor spines on the posterior femur. The two species are evidently closely related.

DISTRIBUTION. Uplands of West Africa.

MATERIAL EXAMINED

Guinea: 1 ♀ (holotype), Nimba, ii.vi.42 (*M. Lamotte*) (MNHN).

Nigeria: 1 ♂, Jos, 14.x.1955 (*Bechyne, Exped. Mus. G. Frey*) (BMNH).

Psilolomia ferruginea (Linnavuori) **comb. n.**

Mevaniomorpha ferruginea Linnavuori, 1970: 43 [in key]; 1978: 36–37 [full description]. Holotype ♂, SUDAN (R. Linnavuori coll.) [examined].

Length: ♂, 9.9 mm; ♀, unknown.

Head dorsally granulate. Antennifers strongly divergent. Length of antennal segment I divided by width of head including eyes about 1.2. Ratio of lengths of antennal segments as 1.00:0.90:0.77:0.63. Ratio of lengths of rostral segments as 1.00:0.71:0.57:0.68.

Lateral margins of pronotum very distinctly concave, bearing granules about as high as wide; posterolateral angles prominent, bearing short, broad posterolateral spines. Metasternum rather strongly convex. Anterior and intermediate femora each with a strong subapical spine beneath; posterior femur with three major spines, four minor spines between the first pair, three or four between the middle and apical major spines and an apical series of five.

Abdominal sternites III–VII with posterolateral angles more acute than right-angled, slightly prominent.

Coloration generally ferruginous.

REMARKS. This species is closely similar to *P. lamottei*. It is the largest species of the genus.

DISTRIBUTION. Known only from the type-locality in the foothills of the Ethiopian massif.

MATERIAL EXAMINED

Sudan: 1 ♂ (holotype), Blue Nile, Ingessana Mts, 17–22.xi.1962 (*R. Linnavuori*) (R. Linnavuori coll.).

Psilolomia brevitibialis Breddin

(Figs 30, 44, 50)

Psilolomia brevitibialis Breddin, 1909: 293. LECTOTYPE ♀, SRI LANKA (IP), here designated [examined].

Neohoplolomia typica Distant, 1913: 284–285. LECTOTYPE ♂, INDIA (BMNH), here designated [examined]. **Syn. n.**

Length: ♂, 5.8–6.4 mm; ♀, 6.4–7.3 mm.

Head dorsally granulate, tuberculate throughout vertex and midline. Antennifers distinctly divergent. Length of antennal segment I divided by width of head including eyes 0.78–0.81. Ratio of lengths of antennal segments about 1.00:0.79:0.96:0.83. Ratio of lengths of rostral segments about 1.00:0.50:0.54:0.54. Head and pronotum together constituting less than 0.39 (male) or 0.35 (female) of total length.

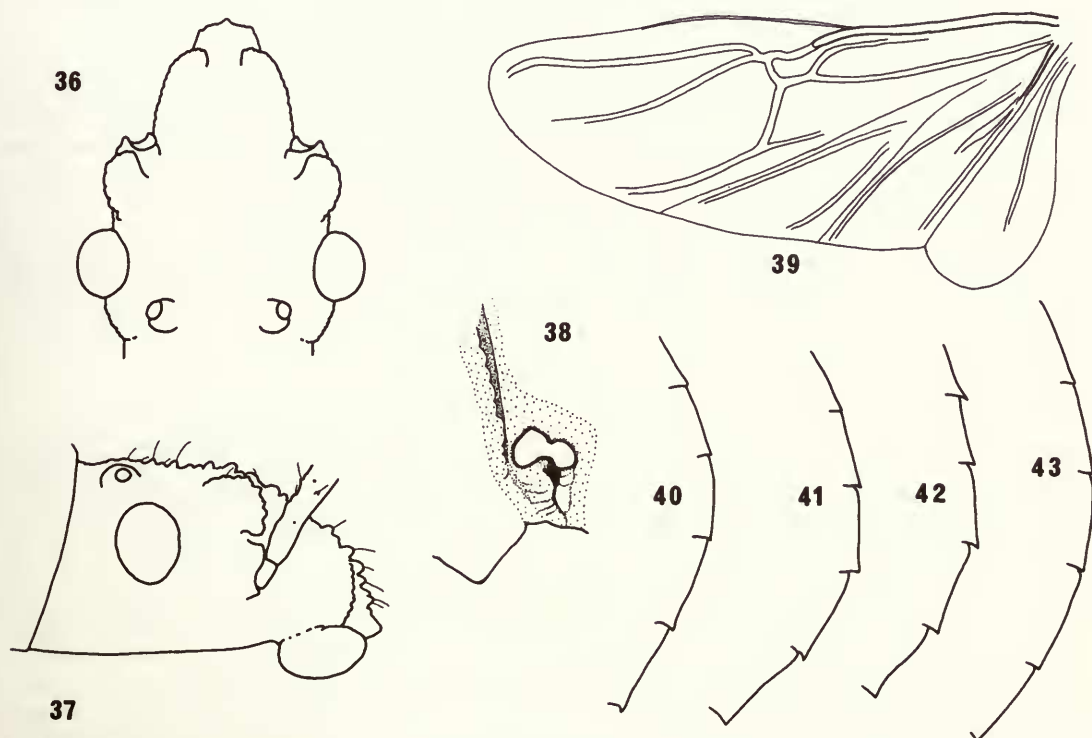
Pronotum (Fig. 30) with lateral margins straight, tuberculate; posterolateral angles not prominent; posterolateral spines short, acute; width across apices of spines divided by width of head including eyes 1.82–1.92. Metasternum moderately convex. Anterior and intermediate femora each without or with one small subapical spine beneath; posterior femur with three major spines, the first about half as long as the others, one to three minor spines between the two large ones and an apical series of four. Length of posterior tibia divided by length of posterior femur about 0.74.

Abdominal sternites III–VII with posterolateral angles right-angled, not prominent. Male conjunctiva (Fig. 44) with apical ventral lobes obsolete and ventral sclerotized strips absent; distal dorsolateral lobes (Fig. 50) short, supported by sclerotizations for only about half their length. Vesica unusually broad.

Pubescence suberect, short; tubercles of head and pronotum bearing longer, erect hairs shorter than three-quarters of the diameter of an eye.

Colour ochreous yellow, often sprinkled with minute red dots. Granules of antennae, femora and sometimes of tibiae piceous; antennal segment IV often piceous; anterior midline of pronotum, apical and basal annuli of tibiae, apical halves of posterior femora and more or less extensive markings of connexivum, especially posterior halves of laterotergites IV–VI, of pleura, of thoracic and abdominal sterna and of corium, especially in two places on the apical margin, piceous.

REMARKS. The short, broad vesica and only partially sclerotized distal dorsolateral conjunctival lobes of this species are unique for the genus. The lack of ventral sclerotized conjunctival strips, the small body size and the possession of an antennal segment II that is shorter than segment III are all shared with *P. parva*. The two species can be distinguished externally by the form of the posterolateral angles of the abdominal sternites, which are acute in *parva* but right-angled in *brevitibialis*.



Figs 36–43 *Psilolomia* species. 36, 37, *dispar*: (36) dorsal view of head; (37) lateral view of head. 38, 39, *vulgaris*: (38) left metathoracic scent-gland aperture; (39) metathoracic wing. 40–43, ventral view of abdominal margin of (40) *steeleae*; (41) *lata*; (42) *brunneofusca*; (43) *vulgaris*.

DISTRIBUTION. Southern India and Sri Lanka.

MATERIAL EXAMINED

Sri Lanka: 1 ♀ (lectotype of *brevitibialis*), Trincomalee (*Horn*) (IP). **India:** 1 ♂ (lectotype of *typica*), Chikkaballapura (*T. V. Campbell*) (BMNH).

India: 26 ♂, 31 ♀, data as holotype of *N. typica* (paralectotypes of *typica*) (BMNH); 1 ♀, Coimbatore, x.1953 (*P. S. Nathan*) (IRSNB). **Sri Lanka:** 1 ♂, Pundaloya (BMNH).

Psilolomia parva sp. n.

(Figs 31, 45, 51)

Length: ♂, 5.4–5.9 mm; ♀, 5.9–6.5 mm.

Head dorsally granulate, tuberculate on vertex and in midline. Antennifers distinctly but rather weakly divergent. Length of antennal segment I divided by width of head including eyes about 0.86. Ratio of lengths of antennal segments about 1.00:0.73:0.89:0.81. Ratio of lengths of rostral segments about 1.00:0.55:0.55:0.55. Head and pronotum together constituting more than 0.39 (male) or 0.35 (female) of total length.

Pronotum with lateral margins (Fig. 31) weakly concave, posterolateral angles scarcely prominent; posterolateral spines acute, at least 1.5 times as long as their basal width; width of pronotum across apices of spines divided by width of head including eyes 1.74–1.83. Metathoracic wing with antevannal vein weak, difficult to see. Metasternum rather strongly convex. Anterior and intermediate femora without or with a single subapical spine beneath; posterior femur with three major spines, the first about half as long as the other two, one to three minor spines between the two large spines and an apical series of four. Length of posterior tibia divided by length of posterior femur about 0.72.

Abdominal sternites III–VII with posterolateral angles acute, slightly but distinctly prominent. Male conjunctiva (Fig. 45) without ventral sclerotized strips, distal dorsolateral lobes (Fig. 51) short, supported by sclerotization throughout their length; vesica slender.

Pubescence short, semidecumbent on hemelytra and most of body, slightly longer and less decumbent on legs and antennae, tubercles of head and pronotum bearing longer, almost erect hairs about as long as two-thirds diameter of an eye.

Colour ochreous yellow; ground colour of clavus, corium and posterior half of pronotum pale cinereous, without yellow tinge. Grey or piceous markings of greater or lesser extent present on midline and posterior border of pronotum, on scutellum, on hemelytra, especially costal and apical areas of corium; on anterior and posterior borders of laterotergites, including more than posterior halves of laterotergites IV and V; on apical halves of femora, especially posterior pair; and on thoracic pleura and abdominal sterna. Mesosternum and metasternum entirely piceous. Tibiae with basal, apical and median annuli grey.

REMARKS. This is the smallest species of the genus. It differs from the African *P. amphrysia* in having the second antennal segment shorter than the third and from the Asian *P. brevitibialis* in having the posterolateral angles of the abdominal sternites acute. The antevannal vein is very indistinct, probably because it is functionally obsolete in such a small wing.

DISTRIBUTION. South-east Asia.

MATERIAL EXAMINED

Holotype ♂, Laos: Wapikhamthong Prov., Khong Sedone, 15.viii.1965 (*native collector*) (BPBM).

Paratypes. Laos: 50 ♂, 49 ♀, Wapikhamthong Prov., Khong Sedone, various dates from 30.iv.1965 to 5.xi.1965 (*native collector*); 13 ♂, 17 ♀, Khong Sedone, 3.viii.1965 (as 3.8.65) (*Rondon*) (BPBM; BMNH). Thailand: 2 ♂, Chiangmai Prov., Chiangmai (Zoo), 16.vi.1965 (*P. D. Ashlock*); 3 ♂, 1 ♀, Chiangmai Prov., Chiangmai (Arboretum), 16.vi.1965 (*P. D. Ashlock*) (BPBM).

Psilolomia dispar (Walker) comb. n.

(Figs 36, 37, 48)

Clavigralla dispar Walker, 1872: 6. Holotype ♂ (no locality cited) (BMNH) [examined]. [*Clavigralla aliena* (Walker); Distant, 1901: 426. Misidentification.]

Length: ♂, 8.4–9.0 mm; ♀, 8.9–9.9 mm.

Head (Figs 36, 37) dorsally granulate, with antennifers very short, slightly divergent, outer apical process obsolete; a large, granular tubercle, almost as large as the eye, present on side of head above each antennifer. Length of antennal segment I divided by width of head including eyes 0.81–0.90. Ratio of

lengths of antennal segments in male about 1·00:1·01:0·88:0·87, in female about 1·00:0·99:0·84:0·92. Ratio of lengths of rostral segments about 1·00:0·63:0·55:0·61.

Pronotum with lateral margins shallowly concave, granulate, posterolateral angles elevated but only weakly produced laterally, posterolateral spines acute, about 1·5 times as long as their basal width; width of pronotum across apices of spines divided by width of head including eyes 1·96–2·04. Metasternum weakly convex. Anterior femur with one small subapical spine beneath, intermediate femur with one small spine and one very small one, posterior femur with three major spines, the first pair with no minor spines between them, the second and last with three or four minor spines between them and with an apical series of four; holotype and some other specimens with a small spine preceding the three major spines.

Abdominal sternites III–VII with posterolateral angles slightly more acute than right-angled and slightly prominent. Conjunctiva (Fig. 48) with ventral, toothed sclerotized strips well developed, distal dorso-lateral lobes sclerotized throughout, L-shaped.

Coloration generally ferruginous; dorsal midline of head with distinct, narrow, yellow stripe; antennal segments III–VII yellow with granulation piceous; segment IV ferruginous; pronotum with anteromedian macula and posterolateral spines brown; legs yellow but extensively covered with brown granules, tibiae with basal, apical and median annuli brown, femora extensively mottled brown or ferruginous, especially apically; thoracic sterna brown; abdominal sterna yellow with brown markings largely confined to two longitudinal bands; laterotergites yellow with brown markings medially and posteriorly; clavus and corium ferruginous, the latter with a few obscure spots on veins brown, membrane fuscous, veins spotted darker, apex of corium and membrane throughout with large, cream spots.

Pubescence rather short, semidecumbent to suberect; erect hairs about as long as two-thirds diameter of eye present rather densely on declivent part of pronotum and on ventral surfaces of femora; main pubescence of head consisting of short, almost decumbent hairs but larger granules, especially of dorsal midline, bearing short, suberect to erect hairs.

REMARKS. This species is immediately recognizable by the presence of the large tubercles above the antennifers; these could be mistaken for the antennifers themselves in dorsal view. The first antennal segment is unusually short for one of the larger species of the genus. Walker's original description refers to three longitudinal brown bands on the pronotum; the lateral ones are, in fact, shadows in the shallow troughs between the gently convex pronotal disc and the elevated posterolateral angles. Distant (1901: 426) redescribed the type-specimen of *Clavigralla dispar* Walker under the impression that it was the type of *Cletus alienus* Walker. The latter, which is now missing, was a female from New Guinea whereas the type of *dispar* was specified by Walker as a male without locality data donated by Saunders.

DISTRIBUTION. India.

MATERIAL EXAMINED

1 ♂ (holotype), no data (*Saunders*) (BMNH).

India: 1 ♀, Pondicherry State, Karikal, vii.1963 (*P. S. Nathan*) (BMNH); 2 ♂, 1 ♀ 'E. Ind.' (*Bacon*); 1 ♂, 'Bgl' (*Haw.*); 1 ♀, no locality (*Haw.*) (all UM); 1 ♂, Pondicherry State, Karikal, 1.i.1959 (*Nathan*); 1 ♂, Karikal Terr., Kurumbaragum, viii.1953 (*Nathan*); 6 ♂, 2 ♀, Tranquebar, vii.1953 (*Nathan*) (J. A. Slater coll.).

Psilolomia vulgaris sp. n.

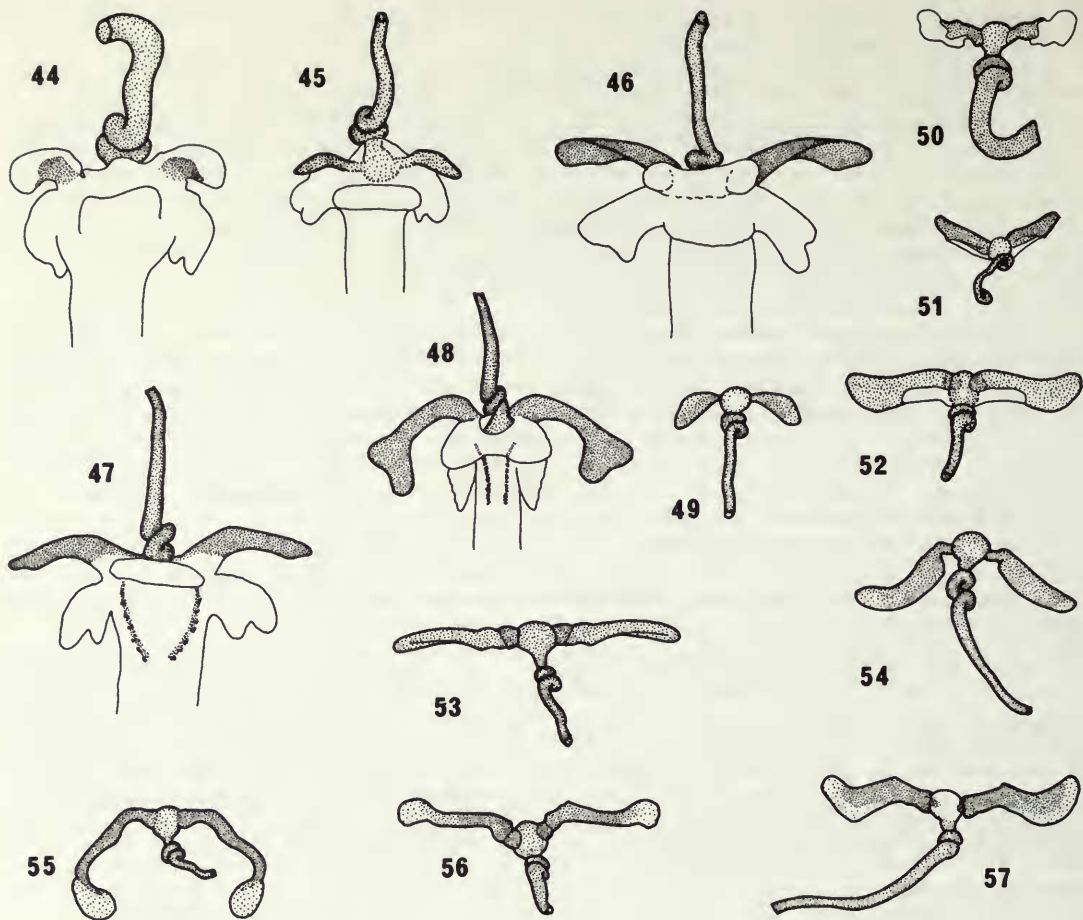
(Figs 32, 38, 39, 43, 55)

Length: ♂, 7·9–8·8 mm; ♀, 8·7–9·7 mm.

Head dorsally granulate. Antennifers abruptly divergent. Length of antennal segment I divided by width of head including eyes in male about 0·89, in female about 0·95. Ratio of lengths of antennal segments in male about 1·00:0·89:0·75:0·89, in female about 1·00:0·96:0·81:0·93. Ratio of lengths of rostral segments about 1·00:0·56:0·56:0·56.

Pronotum (Fig. 32) with lateral margins very shallowly concave, bearing large, conical tubercles about as high as wide; posterolateral spines short, blunt, not longer than wide; width across apices of spines divided by width of head including eyes 1·98–2·11. Metasternum moderately convex. Anterior and intermediate femora each without or with a single, small subapical spine beneath; posterior femur with three major spines, rarely preceded by an additional small spine, the first pair of large spines without or with a single minor spine between them, three or four minor spines between the middle and distal spines and an apical series of four. Length of posterior tibia divided by length of posterior femur 0·75–0·79. Metathoracic wing (Fig. 38) and peritreme (Fig. 39) typical of the genus.

Abdominal sternites III–VII with posterolateral angles slightly more acute than right-angled, very



Figs 44–57 *Psilolomia* species. 44–46, dorsal view of conjunctiva and vesica of (44) *brevitibialis*; (45) *parva*; (46) *brunneofusca*. 47, 48, ventral view of conjunctiva and vesica of (47) *brunneofusca*; (48) *dispar*. 49–57, apical view of vesica, ejaculatory reservoir apparatus and distal dorsolateral lobes of conjunctiva of (49) *amphrysus*; (50) *brevitibialis*; (51) *parva*; (52) *brunneofusca*; (53) *lata*; (54) *lamottei*; (55) *vulgaris*; (56) *pundaloyae*; (57) *nigeriensis*.

weakly prominent (Fig. 43). Male conjunctiva with ventral sclerotized strips rather weakly developed, distal dorsolateral lobes fully sclerotized, strongly angled before their spatulately expanded apices (Fig. 55).

Antennal segments I–III with suberect pubescence shorter than width of segment; rostrum with short, suberect and decumbent pubescence; head with short, semidecumbent hairs and dorsally with longer, suberect hairs not confined to midline; pronotum with short, semidecumbent pubescence posteriorly and suberect pubescence on disc and anteriorly, interspersed except posteriorly with rather longer, erect hairs; legs with short to moderately long, suberect pubescence, femora with longer, erect hairs ventrally; clavus and corium with short, semidecumbent pubescence; thoracic pleura and sterna and abdominal sterna and laterotergites with slightly longer, semidecumbent pubescence.

Coloration generally pale yellowish brown; ocellar tubercles and granules of antennae, rostrum and legs brown. Pronotum with anteromedian macula, lateral granules and posterolateral spines in part brown; scattered markings on pleura, scutellum and corium, especially apical areas of corium, brown; thoracic sterna piceous; femora sparsely mottled with brown, apical half of posterior femur, especially on posterior face, reddish brown. Abdominal laterotergites and bands along abdominal sterna mottled dark brown. Membrane of hemelytra very palely infusate, veins paler with interrupted brown streaks.

REMARKS. This species closely resembles *P. pundaloyae* and the African *P. nigeriensis*; it differs from the former in the shorter pronotal posterolateral spines, from the latter in the longer pubescence of the head and from both in the form of the distal dorsolateral lobes of the conjunctiva. The sexual dimorphism in the relative length of antennal segment I is unusual; the shortness of this segment in the female results in the length of segment IV divided by that of segment I being greater in the female than in the male, the reverse of the usual situation in the subfamily, where segment IV is relatively longer in the male.

DISTRIBUTION. Southern India, Sri Lanka.

MATERIAL EXAMINED

Holotype ♂, **India:** Madras, Karikal, Kurumbagarum, xi.1953 (*P. S. Nathan*) (J. A. Slater coll.).
Paratypes. **India:** 8 ♂, 1 ♀, Karikal Territory, Kurumbagarum, ix.1954 (*Nathan*) (IRSNB); 1 ♂, Karikal, v.1957 (*Nathan*); 1 ♂, Tranquebar, viii.1956 (*Nathan*) (BPBM); 1 ♂, 2 ♀, Pondicherry or Karikal, vii.1953 (*Nathan*) (BMNH); 9 specimens, Tranquebar, vii.1953 (*Nathan*); 36 specimens, Kurumbagarum, various dates vii–xi.1953 and viii.1954 (*Nathan*) (J. A. Slater coll.).

***Psilolomia pundaloyae* sp. n.**

(Figs 1, 56)

Length: ♂, 8.2–8.8 mm; ♀, 9.1 mm.

Head dorsally granulate. Antennifers rather strongly divergent. Length of antennal segment I divided by width of head including eyes 1.00–1.05. Ratio of lengths of antennal segments about 1.00:0.92:0.75:0.80 (IV missing in female). Ratio of lengths of rostral segments about 1.00:0.58:0.49:0.56.

Pronotum (Fig. 1) with lateral margins shallowly concave, bearing short tubercles slightly longer than their basal width; posterolateral spines longer than wide; width across apices of spines divided by width of head including eyes 2.00–2.12. Metasternum weakly convex, its anterior emargination extending posteriorly as a shallow sulcus for over half its length. Anterior femur with a minute subapical spine beneath, intermediate femur with none, posterior femur with three major subapical spines, one minor spine between the first two, three between second and third and an apical series of four. Length of posterior tibia divided by that of posterior femur about 0.82.

Abdominal sternites (Fig. 1) with posterolateral angles distinctly acute and slightly prominent. Male conjunctiva with ventral, toothed, sclerotized strips well developed; distal dorsolateral lobes (Fig. 56) wholly sclerotized, not angled before the spatulate apex.

Pubescence rather short, suberect, tending to semidecumbent on ventral surface of body; longer, erect hairs throughout declivent part of pronotum and dorsal surface of head. Longest hairs of head and pronotum more than two-thirds as long as diameter of an eye.

Coloration pale yellowish brown with darker markings, as in *P. vulgaris*.

REMARKS. This species closely resembles *P. vulgaris* but differs in the longer and more slender posterolateral pronotal spines and the longer pubescence.

DISTRIBUTION. India, Sri Lanka.

MATERIAL EXAMINED

Holotype ♀, **Sri Lanka:** Pundaloya (*Green*) (BMNH).
Paratypes. **India:** 1 ♂, Chikkaballapura, i.1915 (*Campbell*); 1 ♂, Kodai Kanal, v.1918 (*Campbell*) (BMNH).

***Psilolomia brunneofusca* sp. n.**

(Figs 33, 42, 46, 47, 52)

Length: ♂, 7.6–8.8 mm; ♀, 7.9–8.5 mm.

Head dorsally granulate. Antennifers abruptly divergent. Length of antennal segment I divided by width of head including eyes 1.15–1.20. Ratio of lengths of antennal segments in male about 1.00:0.81:0.68:0.74, in female about 1.00:0.83:0.77:0.73. Ratio of lengths of rostral segments about 1.00:0.62:0.56:0.60.

Lateral margins of pronotum (Fig. 33) concave, bearing granules about as high as wide; posterolateral spines acute, longer than their basal width and slightly curved posteriad; width across apices of spines divided by width of head including eyes 2.11–2.14. Metasternum weakly convex. Anterior femur with a small, subapical spine beneath, sometimes with an incipient second one proximal to it; intermediate femur with two spines; posterior femur with three major spines and usually a fourth, smaller one proximal to the others, one to three minor spines between the first pair of large spines, three to four between the

penultimate and last and an apical series of four or five. Length of posterior tibia divided by that of posterior femur 0.78–0.80.

Abdominal sternites III–VII (Fig. 42) with posterolateral angles acute and prominent. Male conjunctiva (Figs 46, 47) with ventral sclerotized strips well developed and distal dorsolateral lobes (Fig. 52) fully sclerotized, with slightly expanded apices.

Pubescence short, semidecumbent; rather longer and suberect on legs, antennae, declivent part of pronotum and dorsum of head; length of hairs of suberect pubescence equalling half to two-thirds diameter of an eye.

General colour dark ochreous brown to almost black. Antennae and legs yellow with all granulation dark brown, antennal segment IV strongly infusate, apical halves of anterior and intermediate tibiae mottled with dark brown, apical half of posterior femur heavily mottled dark brown. Head, pronotum and scutellum ochreous with dark brown markings, the raised, white apex of the scutellum (universal in the genus) strongly contrasting. Thoracic pleura and abdominal sterna and laterotergites reddish yellow with more or less extensive dark brown markings; thoracic sterna piceous or black. Clavus and corium dark ochreous or grey-brown, main veins of corium spotted both darker and paler; membrane darkly infusate, veins brown; membrane and apex of corium with more or less conspicuous whitish spots, those of membrane often interrupting darker colour of veins.

REMARKS. This is a widespread, dark brown species similar in build to the much paler, yellowish *P. vulgaris*. It may be synonymous with *P. clavipes*, from southern China, but specimens of the latter were not available for study. It may be that the abdominal sternites of *clavipes* lack the acutely produced posterolateral angles that are more developed in *P. brunneofusca* than in any other species of the genus. The Indian specimen examined differed from the south-east Asian specimens only in having slightly broader posterolateral pronotal spines. The specimen from peninsular Malaya reported below represents the most south-easterly record of any species of the tribe; only some Clavigrallini represent the subfamily in the Malay Archipelago and northern Australia.

DISTRIBUTION. South-eastern India, Laos, Malaya.

MATERIAL EXAMINED

Holotype ♂, Laos: Pakse, iii.1965 (*J. A. Rondon*) (BPBM).

Paratypes. Laos: 1 ♀, Wapikhamthong Prov., Khong Sedone, 18.ix.1965 (*native collector*) (BMNH); 1 ♂, Borikham Prov., Pakkading, 100–200 m, 23.iv.1965 (*J. L. Gressitt*); 1 ♂, Vientiane Prov., Tha Ngone, 3.i.1965 (*native collector*) (BPBM); 1 ♂, Luang Prabang, Pak Leung, 5.iii.1920 (*R. V. de Salvaza*) (BMNH). India: 1 ♂, Anamalai Hills, Cinchona, 3500 ft [1070 m], v.1957 (*P. S. Nathan*) (BMNH). Malaya: 1 ♂, Perlis, Kaki Bukit, 27.v.74 (*P. Roche*) (BMNH).

Psilolomia clavipes (Hsiao) comb. n.

Psilocoris clavipes Hsiao, 1964: 251–252; 259. Holotype ♀, CHINA: Yunnan, 1250 m, 17.vi.1956 (Academia Sinica, Beijing) [not examined].

Length: ♂, unknown; ♀, 8.7 mm.

Length of antennal segment I about 1.15 times width of head including eyes. Ratio of lengths of antennal segments as 1.00:0.87:0.80:0.80. Ratio of lengths of rostral segments as 1.00:0.69:0.54:0.61. Pronotum with posterolateral angles not produced; posterolateral spines longer than their basal width.

General coloration 'dark ochraceous'.

REMARKS. The partial description given here is based on that of Hsiao (1964: 251–252, 259). No material was available for study. A photograph of this species is reproduced by Hsiao (1977: pl. 46, fig. 603). It looks very similar to *P. brunneofusca* and the two species may be synonymous.

DISTRIBUTION. Southern China (Yunnan).

Psilolomia steeleae sp. n.

(Figs 34, 40)

Length: ♂, unknown; ♀, 8.3 mm.

Head dorsally granulate. Antennifers weakly divergent. Length of antennal segment I divided by width of head including eyes 1.03. Ratio of lengths of antennal segments as 1.00:0.86:0.76:0.79. Ratio of lengths of rostral segments as 1.00:0.64:0.54:0.68.

Pronotum (Fig. 34) with lateral margin distinctly concave, bearing tubercles slightly longer than their

basal width; posterolateral spines short, broadly triangular; width across apices of spines divided by width of head including eyes 1.91. Metasternum almost flat. Anterior and intermediate femora each with a small, subapical spine beneath; posterior femur with three major spines, the first half as long as the other two, no minor spines between this and the middle spine, two minor spines between the two large spines and an apical series of three. Posterior tibiae rather long, 0.88 times as long as posterior femur.

Abdominal sternites III–VII with posterolateral angles (Fig. 40) slightly more acute than right-angled, weakly prominent.

Pubescence short, semidecumbent; rather longer and suberect on legs, antennae, declivent part of pronotum and dorsum of head; length of hairs of suberect pubescence equalling half to two-thirds diameter of an eye.

Coloration paler than in *P. brunneofusca* but not as pale as in *P. vulgaris*; darker markings distributed as in *vulgaris*; membrane of hemelytra fuscous with traces of pale spotting.

REMARKS. This new species differs from *P. vulgaris* in the longer first antennal segment and darker colour, and from *P. brunneofusca* in its shorter pronotal and abdominal spines.

DISTRIBUTION. Known only from the type-locality in Burma.

MATERIAL EXAMINED

Holotype ♀, **Burma**: Mishmi Hills, Lohit River, 24.iii.1935 (*M. Steele*) (BMNH).

Psilolomia lata sp. n.

(Figs 35, 41, 53)

Length: ♂, 7.8–8.5 mm; ♀, 8.5–9.3 mm.

Head dorsally granulate. Antennifers rather strongly and often abruptly divergent. Length of antennal segment I divided by width of head including eyes 1.03–1.16. Ratio of lengths of antennal segments in male about 1.00:0.90:0.76:0.79, in female about 1.00:0.90:0.77:0.70. Ratio of lengths of rostral segments about 1.00:0.67:0.53:0.60.

Pronotum (Fig. 35) with lateral margins deeply concave, bearing tubercles slightly longer than their basal width; posterolateral spines short, triangular; width across apices of spines divided by width of head including eyes 1.96–2.09. Metasternum flat, midline broadly and very shallowly concave throughout. Anterior and intermediate femora each bearing a single subapical spine, rarely a second spine present on intermediate femur; posterior femur with three, rarely four, major spines, penultimate spine preceded by a single minor spine or not, succeeded by three or four minor spines; terminal series consisting of four, rarely five, spines. Posterior tibia rather long, its length divided by that of posterior femur 0.86–0.87.

Abdominal sternites III–VII with posterolateral angles (Fig. 41) slightly more acute than right-angled, not or very slightly prominent. Conjunctiva with ventral sclerotized strips well developed; distal dorso-lateral lobes (Fig. 53) supported by sclerotization right up to their apices, which are not expanded.

Pubescence short, semidecumbent; rather longer and suberect on legs, antennae, declivent part of pronotum and dorsal midline of head; length of hairs of suberect pubescence equalling half to two-thirds diameter of an eye.

General coloration ferruginous, dark markings distributed as in *P. vulgaris*; membrane of hemelytra slightly infusate, veins brown, interrupted by paler stretches.

REMARKS. This broad-bodied, ferruginous species may be distinguished from all others of the genus by the very deeply concave pronotal lateral margins.

DISTRIBUTION. Thailand.

MATERIAL EXAMINED

Holotype ♂, **Thailand**: Chiangmai Prov., Doi Pui, 17.vi.1965 (*P. D. Ashlock*) (BPBM).

Paratypes. **Thailand**: 4 ♂, data as holotype; 2 ♂, 2 ♀, Chiangmai, Doi Suthep, 1300 m, 8.vi.1965 (*Ashlock*) (BPBM; BMNH).

PUNGRA gen. n.

Type-species: *Pungra angusta* sp. n.

Body form rather narrowly oblong, slightly depressed, connexivum slightly widened.

Head longer than pronotum. Antennifers moderately divergent, outer apical processes porrect, broadly triangular. Antennal segment I about as long as head width across antennifers, abruptly but weakly

clavate, slightly longer than II, distinctly shorter than III, IV equal to I in male, shorter in female. Bucculae occupying about one-quarter of length of ventral midline of head. Rostrum at rest reaching to anterior disc of metasternum, segment II subequal to I, IV much shorter, III shortest.

Pronotum gently declivent, much broader than long, with a pair of small, raised calli on posterior disc between posterolateral angles, posterolateral angles weakly produced, posterolateral spines small, lateral margins with four stout tubercles each, posterior margin weakly convex, prescutellar spines absent. Scutellum almost flat, equilateral, its apex scarcely raised. Mesosternum and metasternum deeply sulcate throughout. Dorsal ridge of metathoracic peritreme reniform. Metathoracic wing with antevannal vein. Anterior and intermediate femora without spines or tubercles, posterior femur with basal tubercle well developed, with two major subapical spines preceded by granules and with three or four spine-like tubercles between them and an apical series of four tubercles.

Abdominal sternites with posterolateral angles only slightly prominent, lateral margins not tuberculate. Male genital capsule emarginate, emargination filled by apices of parameres.

REMARKS. This rather undistinguished genus is probably close to *Pseudomyia*, which it resembles in the presence of stout tubercles on the lateral margins of the pronotum, but differs from it in the shape of the posterolateral pronotal angles.

DISTRIBUTION. India.

Pungra angusta sp. n.

(Fig. 58)

Length: ♂, 7.3–7.7 mm; ♀, 8.0–8.4 mm.

Length of antennal segment I 0.76–0.89 times width of head across eyes; ratio of lengths of segments about 1.00:0.96:1.28:1.00 (male) or 1.00:0.98:1.32:0.85 (female); specialized sensory area of segment IV occupying about five-sixths of its length. Ratio of lengths of rostral segments about 1.00:0.92:0.30:0.56.

Pronotum (Fig. 58) with lateral margins straight for much of their length, posterolateral angles abruptly but shortly produced, posterolateral spines short, width across apices of spines 1.63–1.68 times width of head across eyes. Calli of posterior disc granular, close together. Length of posterior tibia 0.84–0.86 times length of posterior femur.

Abdominal sternites with posterolateral angles acute, very slightly prominent. Aedeagus similar in all respects, including the unpaired apical ventral lobe, to that of *Pseudomyia spinicollis* except that distal dorsomedian lobe is broadly conical and lacks finger-like processes at the lateral angles.

Antennal segment I strongly, II and III weakly granulate. Head granulate, dorsally with a few larger granules and tubercles. Pronotum weakly granulate, densely punctate, with a few tubercles anteriorly in addition to the four stout tubercles on the lateral margins. Scutellum, abdominal sternites including their lateral margins and laterotergites weakly granulate, thoracic pleura moderately granulate-punctate, thoracic sterna weakly punctate. Clavus and corium strongly, seriatly punctate except for impunctate area near middle of apical margin of corium. Femora rather weakly granulate.

Pubescence of antennae, head, thorax, femora and abdomen of short, crisped, semidecumbent, pale, rather flattened hairs. Femora, tibiae and tarsi with short, suberect, fine hairs. Tubercles of head and pronotum with short, erect, curved, flattened hairs.

Colour yellowish stramineous, ocellar tubercles dark brown, antennal segment I, sides of head, pronotum, pleura, thoracic and abdominal sterna with diffuse brown markings; apices of all femora, especially the posterior pair, with brown mottling, all tibiae with proximal and distal incomplete brown annuli, anterior tibiae also with incomplete median brown annuli. Membrane of hemelytra colourless, its veins white, veins of membrane and of corium with a few brown spots. Laterotergites with small brown patches at base, at apex and in middle of lateral margins.

DISTRIBUTION. India.

MATERIAL EXAMINED

Holotype ♂, **India:** Nagpur (BMNH).

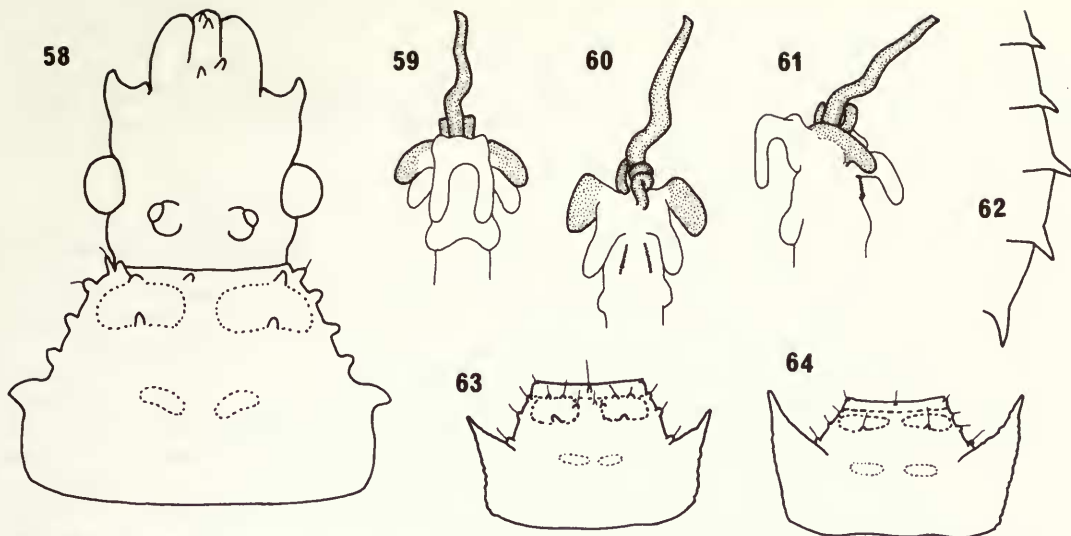
Paratypes. **India:** 1 ♀, Bombay; 1 ♂, 1 ♀, Maharashtra, Jalna, 4.ix.1971 (*J. C. Deeming*) (BMNH).

PSEUDOMYLA gen. n.

Type-species: *Merocoris spinicollis* Spinola.

Body rather narrowly oblong, not depressed, connexivum moderately widened.

Head shorter than pronotum; antennifers moderately divergent, outer apical processes of antennifers



Figs 58–64 58, *Pungra angusta*, dorsal view of head and pronotum. 59–63, *Pseudomyia spinicollis*: (59) dorsal view of conjunctiva and vesica; (60) ventral view of same; (61) left lateral view of same (dorsal to left of figure); (62) ventral view of abdominal margin; (63) dorsal view of pronotum. 64, *P. cornuta*, dorsal view of pronotum.

about as long as broad, porrect. Antennal segment I abruptly but weakly clavate, as long as or slightly shorter than head; segments I–IV subequal in length; specialized sensory area occupying about eight-ninths of length of antennal segment IV. Bucculae occupying about one-quarter of ventral midline of head. Rostrum at rest reaching to anterior margin or disc of metasternum, segment II almost as long as I, IV about two-thirds as long and III about two-fifths as long as I.

Pronotum (Figs 63, 64) with posterolateral angles strongly produced and directed forwards, strongly declivent, posterior margin straight or very shallowly emarginate, without prescutellar spines, lateral margins each with three or four stout tubercles, disc between posterolateral angles with a pair of small, transverse, granular calli. Scutellum almost flat with apex and anterior angles slightly elevated. Mesosternum and metasternum sulcate. Dorsal ridge of metathoracic peritreme reniform. Metathoracic wing with antevannal vein present but feebly developed. Anterior and intermediate femora with or without a single subapical spine beneath; posterior femur with a well-developed basal tubercle, three major subapical spines of which the proximal one is about half as long as the others, two or three tubercles between the two largest spines and an apical series of three or four tubercles. Posterior tibia 0.8–0.9 times as long as femur.

Abdominal sternites III–VII with posterolateral angles produced into small spines (Fig. 62). Male genital capsule posteriorly emarginate, emargination filled by apices of parameres. Spermatheca with bulb gibbously lunate, bulb short.

REMARKS. These reddish ochreous insects with strongly produced and anteriorly directed posterolateral pronotal angles have been placed in the African genus *Myla* on the basis of the wholly superficial similarities of body shape. The genitalia of the males are quite unlike the characteristic form encountered in that genus and the nearest relative of *Pseudomyia* may be *Pungra*, which it resembles in the presence of stout tubercles on the lateral margins of the pronotum and granular calli on its posterior disc; the form of the conjunctiva is very similar in the two genera.

DISTRIBUTION. Oriental region.

Key to species

- 1 Pronotum (Fig. 63) with posterolateral margins behind the posterolateral spines weakly concave, almost straight. (Central and southern India, Sri Lanka) *spinicollis* (p. 182)
- Pronotum (Fig. 64) with posterolateral margins behind the posterolateral angles distinctly convex. (S. China, Laos) *cornuta* (p. 182)

Pseudomyla spinicollis (Spinola) comb. n.

(Figs 59–63)

Merocoris spinicollis Spinola, 1837: 216–217. Syntype(s), INDIA: Bombay (Dupont) [lost].*Clavigralla concolor* Dohrn, 1860: 403. LECTOTYPE ♂, SRI LANKA (IZPAN), here designated [examined]. **Syn. n.***Myla concolor* (Dohrn) Stål, 1873: 84.

Length: ♂, 6.75–7.1 mm; ♀ unknown.

Length of antennal segment I equal to width of head including eyes; ratio of lengths of antennal segments about 1.00:0.92:1.00:0.96. Ratio of lengths of rostral segments about 1.00:0.91:0.41:0.68.

Pronotum (Fig. 63) with posterolateral margins (extending backwards from posterolateral spines) very weakly concave, almost straight. Metasternum moderately convex, shallowly sulcate throughout. Anterior and intermediate femora each with a single, small (Sri Lanka) or obsolete (Bombay) subapical spine.

Conjunctiva (Figs 59–61) with M-shaped dorsomedian lobe with pronounced dorsal angles; low, broad distal dorsomedian lobe with two anteriorly projecting finger-like appendages; distal dorsolateral lobes descending, supported throughout their ventral faces by a sclerotized strip articulating with apices of wings of ejaculatory reservoir complex; apical ventral lobe single, weakly sclerotized; distal ventrolateral lobes membranous except for a pair of toothed strips in ventral wall, which project at their anterior ends on very small, free lobes. Vesica slender, protected at base by a single, asymmetrical sclerite; ejaculatory reservoir asymmetrical but with wings symmetrical, straps absent.

Granulation of antennal segment I dense, uniform, that of segments II and III sparser and smaller; head granulate, pronotum and all pleura strongly punctate and rather weakly granulate, scutellum moderately granulate-punctate, thoracic and abdominal sterna weakly granulate, laterotergites weakly granulate-punctate, clavus and corium densely and strongly seriatly punctate except for impunctate area near middle of apical margin of corium, femora and tibiae sparsely and weakly granulate.

Semidecumbent, short, white pubescence of flattened hairs present on antennal segments I–III, head, thorax, clavus, corium and femora; hairs of thoracic pleura, pronotum and scutellum confused, those of other areas lying more uniformly parallel; femora, tibiae and tarsi with rather longer, fine, colourless, semi-erect pubescence.

Entire insect ochreous red except for black meso- and metasterna, diffuse blackish markings on ventral surfaces of head, pronotum and abdomen and colourless hemelytral membrane with veins marked white and brown; tibiae paler red than rest of insect.

REMARKS. Spinola's type-material of *Merocoris spinicollis*, sent him by Dupont from Bombay, could not be found in Spinola's collection by Prof. Dott. Carlo Vidano, of Turin, who kindly searched for it on my behalf, nor is it catalogued by Casale (1981). The genus is of such distinctive appearance that there can be no doubt that *spinicollis* belongs here. Spinola's description is clear and the length given (3 French lines: equal to 7 mm) is within the measured range of specimens available. The slight difference in the size of the spines of the anterior and intermediate femora of the specimens from Bombay and those from Sri Lanka does not seem sufficient to warrant a division of the material into two species, particularly in view of the small number of specimens available. If it should prove that the Sri Lanka specimens are specifically distinct from the Bombay ones, Dohrn's name *concolor* is available for the species.**DISTRIBUTION.** India and Sri Lanka. Hsiao's (1964: 252) record of *Myla concolor* from China refers to the material upon which he later (Hsiao, 1965: 427) founded the following species.**MATERIAL EXAMINED****Sri Lanka:** 1 ♂ (lectotype of *concolor*), (Nietner) (IZPAN).**Sri Lanka:** 1 ♂, Pundaloya (BMNH); 1 ♂, Pundaloya (Atkinson) (UM). **India:** 2 ♂, Bombay (Dixon), 1 ♂, Bombay (BMNH).*Pseudomyla cornuta* (Hsiao) comb. n.

(Fig. 64)

Myla cornuta Hsiao, 1965: 427, 433. Holotype ♀, CHINA: Yunnan, Xishuang, Banna, 20.v.1958 (Academia Sinica, Beijing) [not examined].Length: ♂, 7.0 mm (*vide* Hsiao, 1965); ♀, 6.5–7.2 mm.

Length of antennal segment I 0.94 times width of head including eyes; ratio of lengths of antennal segments about 1.00:0.90:1.06:0.88. Ratio of lengths of rostral segments about 1.00:0.95:0.41:0.68.

Pronotal margins behind posterolateral spines gently but distinctly convex (Fig. 64). Metasternum moderately convex, rather deeply sulcate throughout. Anterior and intermediate femora unarmed (*vide* Hsiao) or with a single, small subapical spine beneath. Posterior femur with three major spines, the most proximal less than one-third as long as the others, between which are two to four tubercles and beyond which is an apical series of four tubercles. Coloration, especially of clavus and corium, more ochreous than that of *P. spinicollis*.

REMARKS. Type-material was not available but the material examined agrees rather closely with the original description, and the locality from which it was obtained is near to the type-locality.

DISTRIBUTION. China: Yunnan (type-locality) and Laos.

MATERIAL EXAMINED

Laos: 4 ♀, Sedone Province, Paksong, 18.v.1965 (*P. D. Ashlock*) (BPBM).

NEOMEVANIOMORPHA gen. n.

Type-species: *Mevaniomorpha annulipes rodhaini* Schouteden, 1938: 296.

Body oblong, neither compressed nor depressed, connexivum broad.

Head about as long as pronotum; eyes small, prominent. Antennifers divergent, outer apical process about as long as broad, porrect. Antennal segments subequal in length, segment I weakly clavate, granulate to tuberculate, distinctly shorter than head, segments II and III slender, very weakly granulate, IV elongate fusiform with specialized sensory area occupying about seven-eighths of its length. Bucculae occupying about one-quarter of ventral midline of head. Rostrum at rest reaching disc of metasternum; segment III the shortest, II and IV subequal, slightly shorter than I.

Pronotum (Fig. 65) rather strongly declivent, granulate-tuberculate, lateral margins bearing several short tubercles, posterolateral angles strongly produced anterolaterally, tapering to terminal spine; posterior margin weakly convex, with a few granules, prescutellar spines absent. Scutellum almost flat, equilateral, apex not elevated or swollen. Mesosternum and metasternum strongly sulcate throughout. Dorsal ridge of metathoracic peritreme bilobed, anterior lobe much the larger. Corium with apical margin straight. Metathoracic wing with antevannal vein present. Anterior and intermediate femora with subapical spines beneath, posterior femur with three major subapical spines and some minor ones and with basal tubercle well developed. Posterior coxae separated by about half the width of a coxa.

Abdominal sterna III–VII produced into broad, triangular spines, lateral margins almost smooth. Spermatheca (Fig. 72) with bulb lunate, duct long and tightly convoluted. Sclerites of wall of gynatrium triradiate, with three arms of comparable length, one arm rising to meet upper ends of rami, one descending almost to meet base of second valvula and one extending horizontally posteriorly. Ovipositor with valvulae longer and more slender than in related genera. Male genital capsule (Fig. 69) short, posteriorly emarginate, emargination filled by apices of the short parameres (Figs 70, 71). Aedeagus (Figs 66, 67, 68) showing phallosome of form typical in the tribe; conjunctiva with dorsomedian lobe M-shaped, membranous, distal dorsomedian lobe membranous, small, rounded-conical; distal dorsolateral lobes small, weakly sclerotized, apical ventral lobes paired, membranous, subglobular, distal ventrolateral lobes large, membranous, bilobed; ventral wall of conjunctiva with two longitudinal tracts of denticles that extend anterolaterally up sides of conjunctiva; vesica protected at base by a dorsal, cup-like sclerite; ejaculatory reservoir with long wings that extend inside the distal dorsolateral lobes to their apices, without straps.

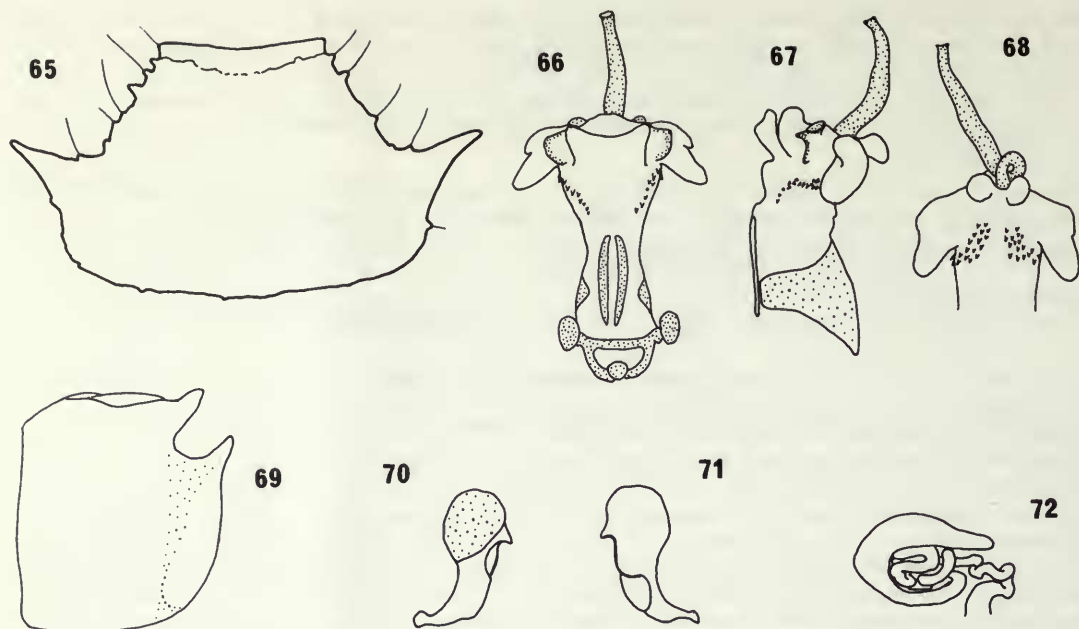
REMARKS. The anterolaterally directed pronotal angles are shared with the African genus *Myla* and the Oriental *Pseudomyia*, both of which have decumbent, scale-like pubescence in contrast to the suberect to erect hairs of *Neomevaniomorpha*. The raised, white tip of the scutellum that is characteristic of *Psilolomia*, *Mevaniomorpha* and *Mevanidea* is not found in this genus; it is least well developed in *Psilolomia* but the form of the conjunctiva is dissimilar. Probably the closest relatives of the genus *Neomevaniomorpha* are *Mevaniomorpha* and *Mevanidea*.

DISTRIBUTION. Central Afrotropical region.

***Neomevaniomorpha rodhaini* (Schouteden) comb n., stat. n.**

(Figs 65–72)

Mevaniomorpha annulipes rodhaini Schouteden, 1938: 296. LECTOTYPE ♂, ZAIRE (MRAC), here designated [examined].



Figs 65–72 *Neomevaniomorpha rodhaini*. 65, dorsal view of pronotum; 66, dorsal view of aedeagus; 67, lateral view of phallosome, conjunctiva and vesica; 68, ventral view of conjunctiva and vesica; 69, lateral view of genital capsule; 70, ventrolateral view of left paramere; 71, dorsomedial view of left paramere; 72, spermatheca.

Length: ♂, 7.4–7.7 mm; ♀, 7.9–9.0 mm.

Antennal segment I about equal to width of head across antennifers, bearing some granules about as high as wide or, in one male paralectotype, with a few tubercles slightly higher than wide among the granules. Ratio of lengths of antennal segments about 1.00:0.96:1.08:0.96. Ratio of lengths of rostral segments about 1.00:0.92:0.64:0.87.

Shape of pronotum as in Fig. 65. Corium with apex reaching or almost reaching suture between laterotergites V and VI. Sulcus of mesosternum and metasternum very broad. Anterior and intermediate femora each with a single subapical spine beneath; posterior femur with first major spine less than half as long as the other two, followed by about three very small minor spines, space between the two larger spines with two or three minor spines and an apical series of four minor spines present. Length of posterior tibia divided by length of posterior femur 0.80–0.84.

Abdominal sternites III–VII with their posterolateral angles drawn out into spines equal in length at most to one-third of the width of their respective laterotergites. Spermatheca and male genitalia as in Figs 66–72 (see description of genus for discussion of salient features).

Head granulate; gular region punctate; vertex, frons, tylus and juga shortly tuberculate. Pronotum granulate-punctate, declivent area and lateral margins tuberculate, pleura granulate-punctate, sterna granulate, scutellum granulate-punctate with the granules on its lateral margins prominent. Hemelytra with clavus and corium punctate throughout, veins anteriorly, especially costal margin of corium, strongly granulate. Legs, especially femora, abdominal sternites and laterotergites granulate.

Pubescence of moderate to rather short, suberect hairs; dorsum of head and declivent part of pronotum with long, erect hairs.

Coloration generally mid-brown; ventral midline of thorax and of abdomen piceous. Membrane of hemelytra fuscous, the veins darker with occasional small, white spots; posterior basal angle white, appearing as a conspicuous, white triangle just behind end of claval commissure when hemelytra are at rest.

REMARKS. This is the only species of the genus. It seems strange that Schouteden could have described this insect as a form of *Mevaniomorpha annulipes*, from which it differs strikingly in the shape of the pronotum and in coloration.

DISTRIBUTION. Zaire and adjacent part of Zambia.

MATERIAL EXAMINED

Zaire: 1 ♂ (lectotype), Sankisia, 1911 (*Dr Rodhain*) (MRAC).

Zaire: 1 ♂, Lulua, Kapanga, viii.1932 (*F. G. Overlaet*); 1 ♀, Lulua, Kapanga, ix.1932 (*F. G. Overlaet*) (both paralectotypes); 2 ♂, Sankuru, M'Pemba Zeo (Gandajika), 28.ix.1958 (*R. Maréchal*); 1 ♂, Tshupa, Lukolela (*De Guide*); 1 ♀, Lulua, Kapanga, i.1933 (*F. Overlaet*); 1 ♀, Wombali, viii.1913 (*P. Vanderijst*) (labelled 'allotypus') (MRAC). **Zambia:** 1 ♀, Upper Kalungwisi Valley, 4200 ft [1260 m], 11.ix.1908 (*S. A. Neave*) (UM).

MEVANIOMORPHA Reuter

Mevaniomorpha Reuter, 1883: 13. Type-species: *Mevaniomorpha annulipes* Reuter, by monotypy.

Body oblong, slightly depressed; connexivum broad.

Head about as long as pronotum, granulate-tuberculate. Antennifers strongly divergent, outer apical process perfect. Antennal segment I weakly clavate, granulate or granulate-tuberculate, longer or shorter than head; III longer than II, both slender, granulate, IV shortest, narrowly fusiform, specialized sensory area occupying four-fifths to five-sixths of its length. Bucculae occupying about one-quarter of ventral midline of head. Rostrum at rest reaching to disc of metasternum, its first two segments subequal in length, fourth shorter, third shortest of all.

Pronotum rather shallowly declivent, granulate-tuberculate and punctate, its posterolateral angles moderately produced laterally with posterolateral spines arising abruptly from them or greatly produced laterally and tapering gradually into the laterally-directed spines; lateral margins with several outstanding tubercles; posterior margin straight, smooth in front of scutellum, granulate further towards sides of body, prescutellar spines absent but granules present in their usual position on each side. Scutellum equilateral, its apex elevated into a small, white swelling occupying about one-fifth of its length. Mesosternum and metasternum longitudinally sulcate throughout. Metathoracic scent-gland peritreme with dorsal ridge bilobed, anterior lobe much the larger, constriction between lobes shallow, sometimes obsolete. Corium with costal and apical margins slightly convex. Metathoracic wing with antevannal vein. Anterior and intermediate femora with one or more small subapical spines beneath; posterior femur with three major subapical spines, some minor ones and a basal tubercle. Posterior tibia slightly more than four-fifths as long as femur. Posterior coxae separated by rather less than width of one coxa.

Abdominal sternites III–VII with posterolateral angles projecting as broad, triangular teeth, lateral margins almost smooth. Spermatheca with bulb lunate, duct tightly convoluted within concavity of bulb. Sclerites of wall of gynatrium L-shaped. Male genital capsule posteriorly emarginate, emargination filled by apices of parameres. Phallosome with ventral sclerite short ventrally, strongly produced posterolaterally, dorsal sclerites very weakly sclerotized. Conjunctiva with flat-topped dorsomedian lobe, conical distal dorsomedian lobe, short distal dorsolateral lobes, broad apical ventral lobes, large distal dorsoventral lobes, all of them membranous; two strips of denticles present in ventral wall of conjunctiva; coiled base of vesica protected by two sclerites of which the left sclerite is twice as long as the right one.

REMARKS. This genus differs from *Psilolomia* in the greater projection of the posterolateral angles of the abdominal sternites and the presence of sclerites at the base of the vesica. The head and first antennal segment are not nearly so spiny as in *Mevanidea*.

DISTRIBUTION. Tropical Africa.

Key to species

- 1 Antennal segment I shorter than width of head including eyes; posterolateral spines of pronotum arising abruptly from the posterolateral angles; width across apices of spines less than 2.5 times width of head including eyes. (Widespread in tropical Africa) ***annulipes*** (p. 185)
- Antennal segment I longer than width of head including eyes; posterolateral angles of pronotum tapering gradually into spines; width across apices of spines more than 2.5 times width of head including eyes. (Forests of Central and West Africa) ***picta*** (p. 187)

***Mevaniomorpha annulipes* Reuter**

(Figs 73, 75, 76)

[*Clavigralla elevator* (Fabricius) sensu Dallas, 1852: 511. Misidentification; not *Coreus elevator* Fabricius, 1803: 194.]

Mevaniomorpha annulipes Reuter, 1883: 13–14. Holotype ♀, GHANA (ZMU) [examined].
[*Mevaniomorpha annulipes* subsp. *picta* Schouteden sensu Linnavuori, 1970: 43–45. Misidentification.]

Length: ♂, 7.2–8.2 mm; ♀, 7.8–9.9 mm.

Antennal segment I about as long as width of head across antennifers. Ratio of lengths of antennal segments in male about 1.00:1.04:1.08:0.88, in female about 1.00:1.04:1.12:0.84; total length of antenna less than 3.7 times width of head including eyes. Ratio of lengths of rostral segments about 1.00:0.92:0.54:0.78.

Posterolateral angles of pronotum (Fig. 73) prominent, posterolateral spines arising abruptly from them, directed laterally; width across apices of spines divided by width of head including eyes 2.2–2.4.

Aedeagus as in Figs 75, 76 (see description under genus).

Head dorsally granulate-tuberculate, laterally granulate, ventrally punctate. Pronotum granulate throughout, tuberculate anteriorly, punctate posteriorly; scutellum and pleura punctate-granulate; thoracic and abdominal sterna and laterotergites weakly granulate. Clavus and corium punctate throughout, veins sparsely and weakly granulate; femora granulate.

Pubescence of rather short, suberect hairs, almost decumbent on head and pleura; longer, erect hairs present on dorsum of head and pronotum.

Colour pattern of medium brown and piceous markings on a paler, yellow ground. The most prominent dark markings are a stripe along anterior midline of pronotum, a pair of spines in front of anterolateral angles of pronotum, apical margin of corium, spot in apical part of disc of corium usually separate from dark apical margin, posterior two-thirds of laterotergites III–V, posterior margins of laterotergites V and VI, anterior margins of laterotergites III–VII and extensive mottling on apices of posterior femora.

REMARKS. Some specimens in the north-eastern part of the range have shorter posterolateral pronotal and abdominal spines than the main population; such specimens were referred to the variety *picta* Schouteden by Linnavuori (1970: 43–45); *picta* in fact has longer spines than true *annulipes* and appears to be a good species.

DISTRIBUTION. Widespread in tropical Africa.

MATERIAL EXAMINED

Ghana: 1 ♂ (holotype), Addah (Reitter) (ZMU).

Guinea: 1 ♂, Nimba, Yalanou, 'ii.vi.42' (Lamotte), 1 ♂, Nimba, Keoulenta, 'ii.vi.42' (Lamotte) (MNH). **Sierra Leone:** 1 ♀ (leg. Morgan fide Dallas, 1852: 511) (labelled '425a' and 'Clavigralla elevator,'); 1 ♂, Mopeille, 1.vii.1926 (Hargreaves) (BMNH). **Ivory Coast:** 1 ♀, Taï, 12.xi.1979 (Couturier) (MNH); 1 ♂, Bingerville, xii.1963 (Décelle); 1 ♀, Korea, au sud de Daloa, ix.1961 (Décelle) (MRAC). **Nigeria:** 1 ♂, Calabar, 9.xi.1955 (Bechyne, *Exped. Mus. G. Frey*); 1 ♂, Akpasha Udi, 27.x.1955 (Bechyne, *Exped. Mus. G. Frey*); 1 ♂, near Bida, between Dabba and Kutiwenji, 20.xi.1970 (Deeming); 1 ♀, Gombe, Matzoro Lakes, i.1929 (Lloyd) (BMNH). **Cameroun:** 2 ♂, Batouri District, 3°45'N, 13°45'E, 750 m, 1.v–6.vi.1935 (Merfield) (BMNH); 1 ♀, Baigom, rég. Bamoun (MNH). **Zaire:** 1 ♂, Gamangui, ii.1910 (Lang & Chapin) (AMNH); 1 ♂, Haut-Uele, Manda, 18.iii.1925 (Schouteden); 1 ♂, Sankuru, M'Pemba Zeo (Gandajika), 1960 (Maréchal); 1 ♂, Kivu, Mulungu, 1939 (Hendrickx); 1 ♂, Kivu, Mulungu-Tshibinda, xi.1951 (Lefèvre); 1 ♂, Kivu, Mwenga, Kitutu, rive de l'Elila, 650 m, forêt marécageuse primaire, humus, iv.1958 (Leleup); 1 ♂, Katanga, Luembe, viii–ix.1956 (de Caters); 1 ♀, Lulua, Kafakumba, xii.1932 (Overlaet); 1 ♀, Maulema, Wamaza, iii–iv.1957 (Cotonco); 1 ♀, Gandajika, iv.1959 (Décelle); 1 ♀, Bas-Congo, Thysville, 1959–1963 (Michaux); 1 ♀, Bas-Congo, Mayidi, 1942 (van Eyen); 1 ♀, Kivu, Mulungu, 1938 (Hendrickx); 1 ♀, Kivu, Mulungu, Tshibinda, xi.1951 (Lefèvre); 1 ♀, Kivu, Ibanda, 1952 (Vandelannoite) (MRAC). **Uganda:** 1 ♂, Mutunda, 1.vi.1911 (Marshall); 1 ♀, Western Ankole, 4500–5000 ft (1350–1500 m), 10–14.x.1911 (Neave) (BMNH). **Kenya:** 1 ♂, Embu, 12.ix.1914 (Browne); 1 ♀, N. slopes of Mt Kenya, on Embu–Meru road, 4500–5000 ft (1350–1500 m), 13–14.ii.1911 (Neave); 1 ♀, Ngong, v.1926 (Gedye); 1 ♂, 1 ♀, Kaimosi, iii–iv.1932 (Turner); 1 ♀, Chyulu Hills, 5200 ft (1600 m), iv.1938 (Coryndon Mus. *Exped.*) (BMNH). **Zambia:** 1 ♂, Lake Bangweulu, N'Sumba Island, 25.xi.1946, beaten from climbers (Steele); 1 ♀, Lake Bangweulu, Kapola, N. of Kapata, 27.x.1946 (Steele); 2 ♂, 1 ♀, Lake Bangweulu district, N'Salushi Island, 13.xi.1946 (Steele); 4 ♂, Upper Luanga River, 27.vii–13.viii.1910 (Neave); 1 ♀, Luangwa to Petauke, 14–17.ix.1910 (Neave) (BMNH); 1 ♂, Lower Kalungwisi valley, 3500 ft (1050 m), dense forest, 12–13.ix.1908 (Neave) (UM). **Malawi:** 1 ♀, Ruvo valley, 1000–2000 ft (300–600 m), 21–25.iv.1910 (Neave) (BMNH). **South Africa:** 1 ♀, Transvaal, Louis Trichard, 20–30.xii.1956 (Capener) (J. A. Slater coll.); 1 ♀ Natal, 'P. town' (?=Pinetown), Graham (BMNH).

***Mevaniomorpha picta* Schouteden stat. n.**

(Fig. 74)

Mevaniomorpha annulipes picta Schouteden, 1938: 296. LECTOTYPE ♂, ZAIRE (MRAC), here designated [examined].

Length: ♂, 8.1–8.4 mm; ♀, 8.6–9.3 mm.

Antennal segment I longer than width of head including eyes; ratio of lengths of antennal segments about 1.00:0.91:0.96:0.71; total length of antennae more than 4.1 times width of head including eyes. Ratio of lengths of rostral segments about 1.00:0.93:0.55:0.79.

Pronotum (Fig. 74) with posterolateral angles merging gradually into posterolateral spines, width across apices of spines 2.6–3.0 times width of head including eyes; tubercles of disc and margins long.

Male genitalia similar to those of *M. annulipes* but ejaculatory reservoir complex with wings rather longer.

Pubescence as in *M. annulipes*; granulation and tuberculation more pronounced. Colour pattern very similar to that of *annulipes* but all elements of pattern darker; antennae rather dark brown throughout.

REMARKS. This species differs from *M. annulipes* in the longer appendages, more pronounced posterolateral spines of the pronotum and darker colour. Linnavuori (1970: 43–45), presumably basing his identification on coloration, referred dark specimens of true *annulipes* to this taxon; these specimens in fact had slightly shorter spines and appendages than typical *annulipes*. After the above description was completed, Dr V. van Zeijst showed me two males of *picta* from the Tai forest in the Ivory Coast; these specimens had very long, slender pronotal spines and were almost black; superficially, they closely resembled the unrelated *Claviralla hystrix* Dallas, which occurred in the same forest.

DISTRIBUTION. Rain forests of Central and West Africa.

MATERIAL EXAMINED

Zaire: 1 ♂ (lectotype), Sankuru, Komi, iv.1930 (*J. Ghesquière*) (MRAC).

Zaire: 1 ♂, Sankuru, Komi, 2.v.1930 (*Ghesquière*); 1 ♂, Stanleyville (= Kisangani), 20.xii.1929 (*Collart*); 1 ♀, Uele, Dingila, ix.1933 (*Brédo*); 1 ♀, Lomani, Kambaye, vii.1930 (*Quarré*) (paralectotypes) (MRAC); 1 ♀, Yangambi, xi.1937 (*Henrard*) (MRAC). **Cameroun:** 1 ♀, Batouri (MNHN).

MEVANIDEA Reuter

Mevania Stål, 1866: 110. Type-species: *Claviralla spiniceps* Signoret, by monotypy. [Homonym of *Mevania* Walker, 1854: 442–443.]

Mevanidea Reuter, 1883: 11–12. Type-species: *Mevanidea granulifera* Reuter, by monotypy.

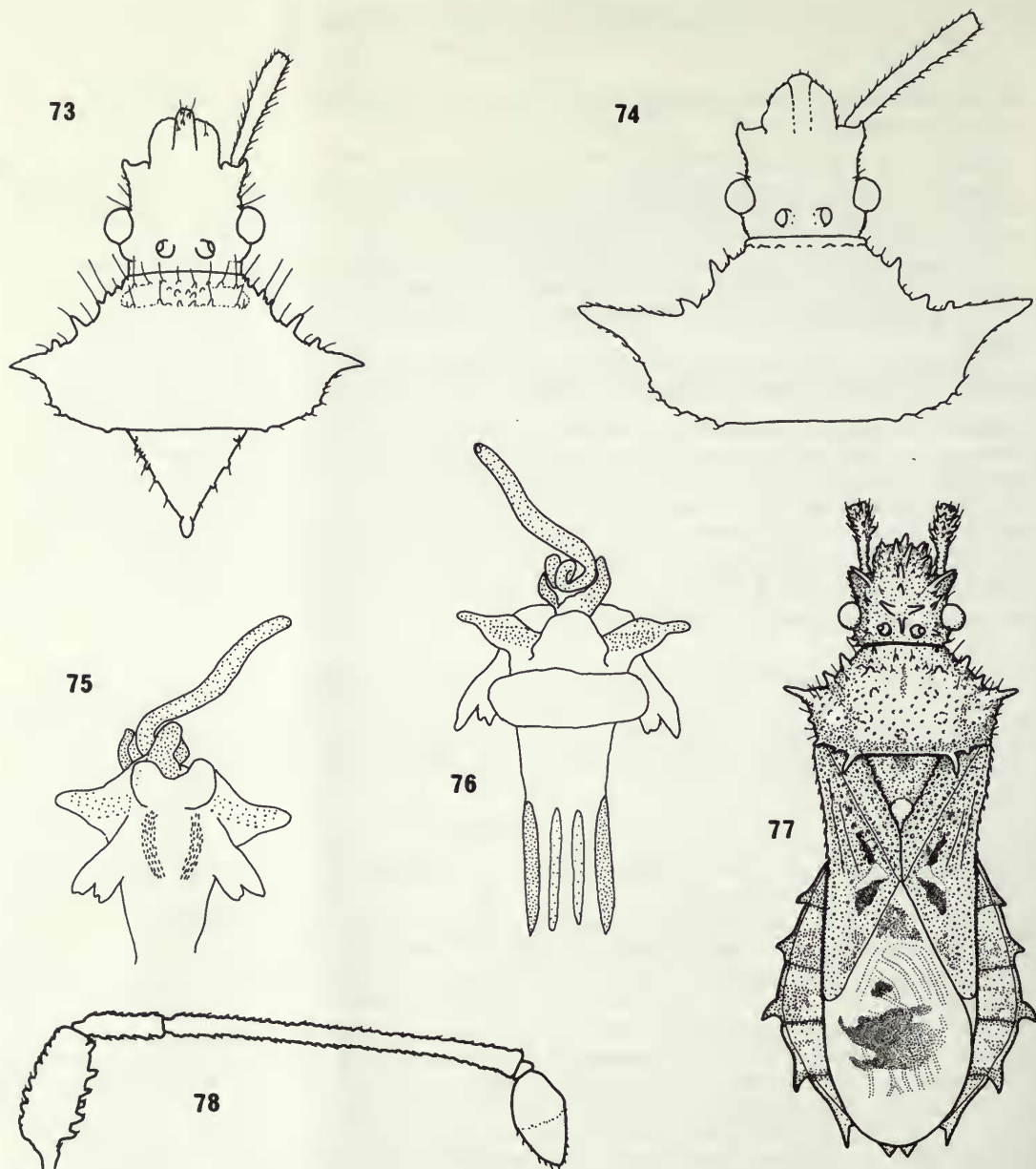
Mevaniella Bergroth, 1907: 146. [Replacement name for *Mevania* Stål.] **Syn. n.**

Body not depressed, conexivum moderately expanded. Aspect, especially of head and pronotum, spinose (Fig. 77).

Head slightly shorter than pronotum, dorsally with numerous, long, spine-like tubercles. Eyes small, prominent. Antennifers moderately divergent, external apical processes porrect and directed slightly downwards. Antennal segment I strongly clavate, bearing numerous spine-like tubercles on its expanded apical part. Antennal segments I and IV subequal in length, IV fusiform; II subequal to or rather longer than I, III much the longest; II–IV almost smooth, bearing hairs about as long as width of segments II and III. Bucculae occupying about one-quarter of ventral midline of head. Rostrum at rest reaching to anterior margin or disc of metasternum; segment II slightly and IV distinctly shorter than I, III obviously shortest.

Pronotum strongly declivent, posterior margin straight or slightly convex, prescutellar spines well developed, tubercles present between them and posterolateral angles, along lateral margins and on disc, including some on posterior part. Posterolateral angles of pronotum slightly produced, posterolateral spines arising abruptly from them, directed laterally and slightly anteriorly. Scutellum equilateral, slightly convex, its apical one-third conspicuously swollen, china-white. Mesosternum deeply sulcate throughout; metasternum sulcate for half or all of its length. Metathoracic peritreme with its dorsal ridge simple or unequally bilobed, the anterior lobe in the latter case much the larger. Metathoracic wing with antevannal vein. Anterior and intermediate femora with two rows of tubercles and granules beneath. Posterior femur with basal tubercle and beneath with three major subapical spines, the first spine two-thirds as long as the others; usually three minor spines between the two biggest ones and an apical series of four. Posterior tibia short, two-thirds to three-quarters as long as femur and conspicuously curved near base.

Abdominal sternites III–VI with posterolateral angles produced into broad, triangular spines, lateral



Figs 73–78 73, *Mevaniomorpha annulipes*, dorsal view of head, pronotum, scutellum and first antennal segment. 74, *M. picta*, dorsal view of head, pronotum and first antennal segment. 75, 76, *M. annulipes*: (75) ventral view of conjunctiva and vesica; (76) dorsal view of phallosome, conjunctiva and vesica. 77, *Mevanidea hystrix*, dorsal view omitting legs and last three antennal segments. 78, *Arenocoris intermedius*, antenna.

margins of sterna granulate. Spermatheca with bulb very narrow, duct three to four times as long as bulb, convoluted. Male conjunctiva with dorsomedian lobe M-shaped, membranous, distal dorsomedian lobe of similar size, also membranous, distal dorsolateral lobes obsolete, distal ventrolateral lobes large, bifid, weakly sclerotized on their posterior faces, apical ventral lobes membranous, paired, ventral wall of conjunctiva with or without a pair of toothed, sclerotized strips; basal, coiled part of vesica protected by two subequal sclerites.

REMARKS. The appearance of the two species of this genus is very characteristic (Fig. 77), the spiny head and first antennal segment being particularly notable. The genus is probably derived from a *Mevaniomorpha*-like form.

DISTRIBUTION. Africa and Madagascar.

Key to species

- 1 Membrane of forewing with an irregular, opaque, piceous or dark brown spot occupying about half of its area. (Africa) *hystrix* (p. 189)
- Membrane of forewing translucent, with some darker markings along veins and sometimes with dark amber shading of area between veins, but never with an opaque spot. (Madagascar) *spiniceps* (p. 190)

Mevanidea hystrix (Gerstaecker)

(Fig. 77)

Mevania hystrix Gerstaecker, 1873: 408–409. Holotype ♂, KENYA (MNHU) [examined].

Mevanidea granulifera Reuter, 1883: 12. Holotype ♀, GHANA (ZMU) [examined]. [Synonymized by Linnavuori, 1978: 36?]

Mevanidea kilimana Schouteden, 1910: 157. [Nomen nudum.]

Mevaniella kilimana Schouteden, 1912: 55. LECTOTYPE ♂, KENYA (NR), here designated [examined]. [Synonymized by Schouteden, 1938: 295.]

Mevanidea hystrix (Gerstaecker) Schouteden, 1938: 295.

Length: ♂, 5.7–6.8 mm; ♀, 6.2–7.6 mm.

Ratio of lengths of antennal segments in male about 1.00:1.02:1.30:1.02, in female about 1.00:1.14:1.41:1.00. Ratio of lengths of rostral segments in male about 1.00:0.97:0.55:0.79, in female about 1.00:0.97:0.50:0.75. Head dorsally with numerous granules and tubercles of various lengths, most noticeably a pair of spine-like tubercles close together between eyes with a third immediately behind them, a long, spine-like tubercle on each side of vertex just posterior to inner basal angles of antennifers, a staggered row of long tubercles all along tylus and others, rather shorter, on juga; sides and ventral surface of head punctate-granulate.

Pronotum with lateral margins almost straight, bearing three or four long tubercles, lateral angles suddenly prominent; prescutellar spines long, slender, sinuous; centre of disc with a widely spaced pair of conical tubercles, two groups of partially fused, blunt granules behind them but less widely spaced and a row of three similar clusters of granules between these and posterior margin in addition to more generally distributed granules and tubercles. Scutellum and thoracic pleura and sterna punctate-granulate. Hemelytra with clavus and corium, except for smooth area in middle of its apical part, punctate, veins anteriorly and basally granulate. Femora strongly granulate, shortly tuberculate dorsally and ventrally, with one or two subapical tubercles of the anterior and intermediate femora enlarged and occupying the usual positions of subapical spines; posterior femur with three major subapical spines beneath, one to four minor spines in the space between the first two and three or four in the space between the middle and last, with an apical series of three or four. Posterior tibia about two-thirds as long as femur.

Ventral wall of conjunctiva of aedeagus with a pair of apically divergent, toothed, sclerotized strips; vesica short, about as long as either of the wings of the ejaculatory reservoir complex.

Pubescence throughout of moderate to short, suberect hairs with some long, erect hairs on pronotum.

Colour pattern as in Fig. 77; the pale areas being stramineous and the dark areas varying from dark brown to dark red in different specimens. The most striking features of the colour pattern are the china-white, swollen apex of the scutellum, an irregular, opaque, dark brown blotch in the middle of the membrane of the hemelytra and a dark brown (never red) transverse spot near middle of corium edged proximally with white; laterotergites III to VI largely dark with a pale band anteriorly, VII largely pale.

REMARKS. I can trace no earlier synonymy of *granulifera* with *hystrix* than that of Linnavuori (1978: 36); however, the synonymy is not indicated as new in that publication. The holotype of *M. hystrix* Gerstaecker is a small (6.0 mm) and very red male from Mombasa (Kenya) and that of *M. granulifera* Reuter a large (7.1 mm) blackish brown female from 'Addah' (i.e. Ada, Ghana). The great distance (4500 km) between the type-localities and the striking difference between specimens at the extremes of the range of colour variation have led earlier workers to recognize two species on the African continent. The reddish coloration is in general more pronounced in specimens from eastern and southern Africa and the brownish

coloration more pronounced in those from western Africa. The dark brown blotch in the middle of the membrane of the hemelytra is variable in extent but not in colour. The egg of this species is illustrated by Cobben (1968: 97, fig. 84).

DISTRIBUTION. Widespread in subsaharan Africa.

MATERIAL EXAMINED

Kenya: 1 ♂ (holotype of *hystrix*), Mombasa (*van der Decken*) (MNHU). **Ghana:** 1 ♀ (holotype of *granulifera*), Addah (*Reitter*) (ZMU). **Kenya:** 1 ♀ (lectotype of *kilimana*), Kilimanjaro (*Sjoestedt*) (NR).

Sierra Leone: 1 ♀, Port Lokko, 30.viii.1925 (*Hargreaves*) (BMNH). **Ivory Coast:** 1 ♀, Adiopodoumé, iv–v.1964 (*Cobben*) (BMNH); 1 ♀, Bouaké, ii.1963 (*Schmitz*) (MRAC). **Ghana:** 1 ♂, Kintampo, 7.xii.1965 (*Leston*) (BMNH). **Nigeria:** 1 ♂, Kumba, 15.xi.1955 (*Bechyne*) (BMNH). **Sudan:** 1 ♂, Ingessana Mts, Blue Nile, 18–22.xi.1982 (*Linnavuori*) (BMNH). **Zaire:** 1 ♂, Yangambi, xii.1959 (*Décelle*); 1 ♀, Muranan 'Deke, v.1953 (*De Francquen*) (MRAC); 1 ♂, Mpese, 11.vi.1937 (*Cooreman*) (IRSNB); 7 ♂, 5 ♀, Faradje, 29°40'E, 3°40'N, i.1913 (*Lang & Chapin*) (AMNH). **Uganda:** 1 ♂, Bussu Busoga, v.1909 (*Bayon*); 1 ♀, Chugwe, Mabira Forest, 3500–3800 ft (ca 1100 m), 16–25.vii.1911 (*Neave*) (BMNH). **Kenya:** 1 ♂, Rabai, vii.1937 (*van Someren*); 1 ♂, Mombasa, iii.1921 (*van Someren*); 1 ♀, Chyula Hills, 5200 ft (1600 m), iv.1938 (*Coryndon Museum Expedition*) (BMNH). **Tanzania:** 1 ♂, Uvira, 28–29.viii.1931 (*Ogilvie*); 1 ♂, Zanzibar, near Mazi Moja, 20.viii–11.ix.1924 (*Snell*) (BMNH); 1 ♀, Zanzibar (*Ashby*) (AMNH). **Malawi:** 1 ♂, between Fort Mangoche and Chikala Boma, about 4000 ft (1200 m), 20–25.iv.1910 (*Neave*); 1 ♀, Mlanje, 2.xii.1912 (*Neave*) (BMNH). **Zambia:** 2 ♂, 2 ♀, Upper Luanga River, 27.vii–13.viii.1910 (*Neave*); 1 ♀, Lake Bangweulu district, ix–xii.1946 (*Steele*); 1 ♀, Lake Bangweulu, Chilwi Island, beaten from lemon (*Citrus limon*), 29.xi.1946 (*Steele*) (BMNH). **South Africa:** 1 ♂, 1 ♀, Transvaal, Kruger National Park, 3 miles E. of Satara Camp, Nwanzdi River, 29.iv.1968 (*Schuh, Slater & Sweet*) (J. A. Slater collection); 1 ♂, Transvaal, Johannesburg, 6000 ft (1800 m), ii.1895 (*Cregoe*); 1 ♀, Transvaal, Johannesburg, 6000 ft (1800 m), iv.1899 (*Cregoe*); 1 ♂, Natal, Estcourt, i.1897; 2 ♂, Natal, Tugela River, near Weenen, 14.iii.1897; 1 ♀, Natal, Durban, 1874 (*Bell-Marley*) (BMNH).

Mevanidea spiniceps (Signoret) comb. n.

Clavigralla spiniceps Signoret, 1861: 944. LECTOTYPE ♀, MADAGASCAR (NMV), here designated [examined].

Mevania spiniceps (Signoret) Stål, 1866: 110–111.

Mevaniella spiniceps (Signoret) Bergroth, 1907: 146.

Length: ♂, 6.8–7.8 mm; ♀, 7.3–8.2 mm.

Ratio of lengths of antennal segments in male about 1.00:1.30:1.55:1.15, in female about 1.00:1.14:1.48:1.04. Ratio of lengths of rostral segments in male about 1.00:0.92:0.54:0.87, in female about 1.00:0.92:0.55:0.78. Head strongly spiny-tuberculate but with fewer tubercles and granules than *M. hystrix*; the pair of long tubercles on vertex between eyes without a tubercle behind them. Posterior tibia about three-quarters as long as femur.

Aedeagus with no ventral sclerotized, toothed strips on conjunctiva and with vesica about twice as long as either wing of ejaculatory reservoir.

Colour pattern of dark to pale, often somewhat rufous (but never strongly reddish) brown areas and stramineous areas; membrane of hemelytra without opaque, brown blotch though with some brown markings along veins and occasionally with some dark amber shading of membrane between veins. Laterotergites III to V largely dark, each with a pale band anteriorly, VI and VII largely pale.

REMARKS. This species resembles *M. hystrix* in general appearance. The main differences are in the aedeagus, where the longer vesica of *spiniceps* is presumably plesiomorphic and the absence of ventral sclerotized strips in the conjunctival wall apomorphic, and the absence of the dark brown blotch on the hemelytral membrane. The presence of only two spines, rather than three, on the vertex between the eyes is constant in all the specimens examined. *M. spiniceps* and a few species of *Clavigralla* (tribe Clavigrallini) are the only Pseudophloeinae known from Madagascar.

DISTRIBUTION. Madagascar.

MATERIAL EXAMINED

Madagascar: 1 ♀ (lectotype) (NMV).

Madagascar: 1 ♀, Tuléar Province, Tongobory, 200 m, 27.iii.1968 (*K.M.G. & P.D.*) (BMNH); 4 ♂, 2 ♀, [no precise locality], 1930 (*Sicard*); 2 ♂, Baie de Baly, Plateau de Soalala, 1930 (*Joly*); 2 ♂, no data; 1 ♂, Région de Sud-est, Fort-Dauphin, i.1901 (*Alluaud*); 1 ♂, Nossi-Bé, 5.vii.1900 (*Alluaud*); 1 ♂,

Ivondro, vii.1900 (*Alluaud*); 1 ♂ [no precise locality], (*Fairmaire*); 1 ♀, Région de Sud-est, Vallée du Fanjahira, xii.1901 (*Alluaud*); 1 ♀, Vallée du Fanjahira, Isaka, xii.1901 (*Alluaud*); 1 ♀, Nossi-Bé, Forêt Loukoubé, 1897 (*Alluaud*); 1 ♀, Sahambava, Fianarantsoa (MNHN).

ARENOCORIS Hahn

Arenocoris Hahn, 1834: 109–110. Type-species: *Coreus falleni* Schilling, by subsequent designation of Blanchard, 1842: 312.

[*Atractus* Laporte sensu Curtis, 1834: legend to pl. 500. Misidentification.]

Pseudophloeus Burmeister, 1835: 301, 302, 308. Type-species: *Coreus falleni* Schilling, by subsequent designation of Brullé, 1835: 359.

Ammocoris Agassiz, 1848: 48, 94. [Unjustified emendation of *Arenocoris* Hahn.]

Psammocoris Marshall, 1868: 281. [Unjustified emendation of *Arenocoris* Hahn.]

Boudicca Kirkaldy, 1909: 30. [Unnecessary replacement name for *Pseudophloeus* Burmeister.]

Body strongly depressed, ovate; connexivum considerably expanded in middle. Body and appendages conspicuously granulate-tuberculate.

Head distinctly longer than pronotum. Antennifers divergent with outer apical process either porrect or deflexed. Antennae with segment I much shorter than width of head, strongly incrassate except for basal one-eighth; segments II and III slender, II much shorter than I, III about 4 times as long as II, IV short, fusiform, intermediate in thickness between I and II. Bucculae occupying about two-fifths of ventral length of head. Rostrum at rest reaching to posterior margin of mesosternum.

Pronotum weakly declivent, abruptly widened posteriorly; posterolateral angles truncate, sometimes auriculate, not pointed and not bearing posterolateral spines; posterior margin almost straight, weakly developed prescutellar lobes (not spines) present. Scutellum equilateral, lateral margins elevated anteriorly, apex elevated and bilobed. Mesosternum throughout and metasternum anteriorly deeply sulcate in midline. Metathoracic scent-gland peritreme with dorsal lobe entire, its dorsal margin evenly rounded, descending anteriorly and posteriorly to enclose orifice in at least its dorsal half. Membrane of hemelytron with venation reticulate. Metathoracic wing with antevannal vein well developed. Anterior and intermediate femora without subapical spines beneath, sometimes with a very slightly enlarged tubercle in this position; posterior femur with a single, large tubercle or blunt spine subapically beneath, very rarely with an additional, slightly enlarged tubercle distad of this; base of posterior femur with a prominent tubercle adjacent to trochanter.

Abdominal margin evenly rounded, posterolateral angles of sternites obtuse or right-angled, not prominent. Male genital capsule short with tongue triangular, lip obtusely angled in middle; parameres broad, flat, their apices filling posterior emargination of capsule. Phallosome comprising two slender, dorsal sclerites and a slightly shorter, broad, ventral sclerite. Conjunctiva with dorsomedian lobe broad, membranous; distal dorsolateral lobes very long, their posteroventral sides supported by sclerotized extensions of wings of ejaculatory reservoir apparatus; vesica not protected basally by sclerites; apical ventral lobes small, membranous; distal ventrolateral lobes large, bilobed, the lower lobe sclerotized on its posterior face; ventral wall of conjunctiva with two slender, parallel sclerites; ejaculatory reservoir complex with wings long, straps absent. Ovipositor with second valvulae emarginate at apex. Sclerites of dorsal wall of gynatrium short, each comprising a narrow, longitudinally elongate, vertical, mesal plate supporting a thin, sclerotized ring and a narrow, horizontal, transverse, anterior plate articulating laterally with second valvifer and its ramus. Spermatheca with bulb lunate or half-moon shaped, duct about 1.5 times as long as bulb, slightly undulate but not convoluted.

INCLUDED SPECIES. Stichel (1962: 194–195) lists six species: *egenus* (Horvath, 1917), *falleni* (Schilling, 1829), *gestroi* (Bergevin, 1930), *intermedius* (Yakovlev, 1883), *latissimus* Seidenstücker, 1960 and *waltli* (Herrich-Schaeffer, 1834). Chernova (1979: 579) established the synonymy of *egenus* with *falleni*, and the synonymy of *gestroi* with *intermedius* is established below.

REMARKS. This is essentially a Palaearctic genus, with a single eremic species intrusive into the north-eastern part of the Afrotropical region. Within the tropical fauna it is readily distinguished from other genera of Pseudophloeinae by the very short antennal segments I and II.

DISTRIBUTION. Europe, North Africa, Canary Islands, western Asia; mostly eremic but two species extend into cooler parts of Europe and another into Ethiopia and Chad.

Key to species

- 1 Outer apical process of antennifer deflexed 2
- Outer apical process of antennifer porrect 3
- 2 Antennal segment I longer, length of incrassate part 0.46 or more times width of head including eyes. (Spain, Portugal, western Asia and northern Africa southwards to Chad and Ethiopia) *intermedius* (p. 192)
- Antennal segment I shorter, length of incrassate part less than 0.46 times width of head including eyes. (Europe, western Asia, North Africa from Morocco to Libya) *falleni* (Schilling)
- 3 Head shorter, its length equal to its width including eyes. (Europe, Canary Islands, coastal countries of North Africa, western Asia, Central Asia) *waltli* (Herrich-Schaeffer)
- Head longer, its length about 1.2 times its width including eyes. (Turkey and adjacent areas of U.S.S.R.) *latissimus* Seidenstucker

Arenocoris intermedius (Yakovlev)

(Fig. 78)

Pseudophloeus intermedius Yakovlev, 1883: 101–103. Holotype (sex unknown), U.S.S.R.: Krasnovodsk (Bekker) (IZ) [not examined].

Pseudophloeus angustus Reuter, 1891: 139. Holotype ♀, EGYPT (ZMU) [examined]. [Synonymized by Kirichenko, 1952: 165.]

Pseudophloeus gestroi Bergevin, 1930: 32. Holotype ♂, LIBYA: Giarabub, 1926–1927 (*Confalonieri*) (Museo Civico di Storia Naturale, Genova) [not examined]. **Syn. n.**

Arenocoris intermedius (Yakovlev) Kirichenko, 1952: 165.

Length: ♂, 6.0–7.2 mm, ♀, 5.6–7.4 mm.

Head granulate-tuberculate. Length of head equal to its width inclusive of eyes; antennifers strongly divergent, their outer apical processes deflexed. Antennae (Fig. 78) with segment I abruptly incrassate from a slender base, incrassate part tuberculate; segments II and III slender, weakly and densely granulate; IV shortly ovate-fusiform, nearly as thick as I and with apical sensory area occupying about one-half of its length. Length of antennal segment I (excluding slender basal part) divided by width of head including eyes 0.47–0.61. Ratio of lengths of segments (again excluding slender base of I) in male about 1.00:0.58:2.34:0.80, in female about 1.00:0.57:2.25:0.83. Ratio of lengths of rostral segments about 1.00:0.98:0.52:0.72.

Pronotum granulate-tuberculate, lateral margins each bearing three or four prominent tubercles, disc with two longitudinal rows of semiglobular granules, most of these in contact with the neighbouring ones, not standing separately; anterolateral margins distinctly but rather shallowly concave. Scutellum, pleura, femora and veins of corium granulate. Abdomen with laterotergites granulate.

Colour pale yellowish brown, usually with darker brown mottling, to piceous with paler markings. Antennal segments I to III usually pale yellowish brown throughout, infuscate in darkest specimens, III never darkened at apex, intercalary segment and segment IV always black. Membrane of hemelytra colourless, veins white with short, piceous streaks.

REMARKS. *Pseudophloeus gestroi* was described from a single male taken at the oasis of Jarabub (Giarabub) in Libya by Confalonieri. In his original description, Bergevin (1930: 32–33) compared it with *falleni* and *waltli* but not with *intermedius*, which suggests that he was not familiar with this last species. His description agrees well with *intermedius*, especially in the 'almost smooth' antennal segment III and in the shape of the pronotum, which is usually less abruptly widened posteriorly in this species than in most specimens of *falleni*. In *falleni*, antennal segments II and III are distinctly more strongly granulate. Bergevin did not mention the length of antennal segment I in relation to the width of the head, which is greater in *intermedius* than in *falleni*. A drawing of the holotype of *P. gestroi*, kindly supplied by Dr R. Poggi, confirms that this species is synonymous with the former rather than the latter. I have seen specimens of *falleni* from several localities each in Britain, Spain and Greece and from single localities in Austria, Gibraltar and Tunisia (Sbeitla). The specimen of *intermedius* listed below from Ethiopia has shorter appendages than the others examined. Its antennal segment I was found to be almost as short as in *falleni*. It appears to have suffered some damage to one posterior leg and to the abdominal apex during development, which suggests that it may not be typical of the species in Ethiopia. Dr I. M. Kerzhner (pers. comm.) reports two specimens from Addis Ababa in IZ.

DISTRIBUTION. Eremic. Spain and Portugal but no other countries in Europe to the north of the

Mediterranean Sea; North Africa south to Chad and Ethiopia; Sinai; Iraq; Iran; Turkey; Turkmenia (in part *vide* Stichel, 1962: 194).

MATERIAL EXAMINED

Egypt: 1 ♀, (holotype of *angustus*), Sinai, Aïoun Mousa, ii.1899 (*Autran*) (data *fide* Reuter, 1891) (ZMU).

Chad: 2 ♂, Kanem District, N'Gouri, viii.1958, x–xi.1958 (*Renoud*) (MRAC). **Sudan:** 1 ♂, Um Enderaba, 2.x.1927, at light (*Johnston*) (BMNH). **Ethiopia:** 1 ♂, Simien, Ras Degien, below the pass, over 4300 m, swept from *Senecio farinaceus* and *Helichrysum citrispinum*, 11.xii.1952 (*Scott*) (BMNH).

Extralimital material. **Spain:** 4 ♀, Cangas (*Champion*). **Algeria:** 3 ♂, 2 ♀, Biskra (*Champion*). **Tunisia:** 1 ♀, Tozeur (*Champion*); 2 ♀, Gafsa (*Champion*); 2 ♀, Sfax (*de Vaulner*). **Libya:** 1 ♂, Cyrenaica, xi.1942. **Palestine:** 1 ♂, 1 ♀, Gaza district, Deir El-Belach, 10.v.1917, 14.v.1917 (*Austen*). **Iraq:** 1 ♂, 2 ♀, Baghdad, xii.1918, 27.xi.1918 (*Harwood*). **Iran:** 2 ♀, Shiraz, Bushire, 1–2.v.1927 (*Siyazov*). **U.S.S.R.:** 1 ♂, 2 ♀, Uzbekistan, Termez, 24.v.1912, 5.v.1912, 25.v.1912 (*Kirichenko*); 2 ♂, 1 ♀, Tadzhikistan, Molotovabad (= Pyandzh), 5–7.iii.1944 (*Kirichenko*). (All BMNH.)

MYLA Stål

Myla Stål, 1866: 111. Type-species: *Myla nigrispina* Stål, by monotypy.

Body form parallel-sided, length about 3 times breadth, sometimes broader (*M. lata*), sometimes somewhat depressed (*M. niokensis*), connexivum narrow to broad.

Head about as long as broad, weakly granulate. Antennifers weakly divergent, their outer apical processes porrect. Antennae with segment I varying in length from about 0.50–1.25 times width of head including eyes, almost isodiametric throughout its length, weakly granulate; segment III about 1.25 times as long as II, both segments slender and weakly granulate; segment IV elongate, cylindrical, variable in length between the species so that in some it is the longest and in others the shortest segment, its specialized sensory area occupying nine-tenths of its length or more. Bucculae occupying about one-third of ventral length of head. Rostrum at rest reaching posteriorly to base of metasternum.

Pronotum strongly declivent anteriorly, disc weakly or very weakly granulate; lateral margins with many small granules or a few large granules or tubercles; posterolateral angles scarcely to very strongly produced anterolaterally or laterally, bearing obsolete to long, slender and acute posterolateral spines; posterior margin weakly convex, smoothly rounded, sometimes appearing slightly trilobed but without distinct emarginations or projections. Scutellum equilateral or slightly elongate, its apex slightly elevated above clavi at rest, usually white; lateral margins, especially anteriorly, slightly elevated; disc flat, weakly granulate-punctate. Mesosternum sulcate throughout. Metasternum strongly convex, sulcate only anteriorly. Metathoracic scent-gland peritreme with dorsal ridge reniform. Corium with distal margin weakly or very weakly concave, its apex reaching to level of suture between laterotergites V and VI when at rest. Metathoracic wing with antevannal vein present. Anterior and intermediate femora usually with a single, prominent, subapical granule or tubercle beneath; posterior femur with well-developed basal tubercle and subapically beneath with three major spines, of which the first (proximal) one is very small, two to four small granules or tubercles between the two larger spines and an apical series of four tubercles. Posterior coxae separated by a distance equal to approximately half the width of a coxa.

Abdominal sterna III to VII with posterolateral angles acute, weakly to strongly produced, lateral margins of these sternites finely or obsoletely granulate. Male genital capsule posteriorly emarginate, the emargination with a central cusp; parameres with blades flat, their apices not occluding emargination of capsule (Fig. 96), proximal tooth of paramere simple, apical tooth long, upcurved. Phallosome (Figs 111–113) comprising a single dorsal and a single ventral sclerite, both broad, each with a narrow, median, posterior projection, ventral sclerite proximally produced dorsad on each side to meet dorsal sclerite. Conjunctiva (Figs 111–114) with dorsomedian lobe membranous, transverse, its lateral angles prominent; distal dorsolateral lobes membranous, arising close together over ejaculatory reservoir, finger-like, reflexed anteriorly; apical ventral lobes large, membranous, paired; distal ventrolateral lobes deeply bifid, wings of ejaculatory reservoir complex extending into the dorsal, descending arm of each lobe, ventral, anteriorly directed arm of each lobe membranous and without sclerotized support; ventral lobes lightly sclerotized, wide apart, narrow, anteriorly directed and slightly upcurved; base of vesica without protective sclerites. Sclerites of wall of gynatrium in female each comprising a curved plate parallel to rami bearing a longer, ventral, mesal and a shorter, dorsal, lateral process, both directed posteriorly. Spermatheca (Figs 115, 116) with bulb lunate, duct adjacent to bulb tightly convoluted, connected with gynatrium by an S-shaped portion of the duct.

Main pubescence of body, hemelytra, femora and first antennal segment consisting of short, semidecumbent

bent to adpressed, white, flattened, scale-like hairs. Coloration, probably of all species, variable, basically grey-brown with more or less of a yellowish or reddish suffusion.

REMARKS. This genus differs from all others in the tribe in the form of the parameres, of which the distal tooth is long and sharply upcurved at right angles to the blade and the apices do not fill the posterior emargination of the genital capsule. The form of the phallosome is also unique within the tribe. The scale-like pubescence is sufficient to distinguish *Myla* species from all other African Pseudophloeinae except *Paramyla australis*. *Myla* species are sometimes mistaken for members of the tribe Clavigrallini which, however, lack the tubercle that is present in *Myla* at the base of the posterior femur. Eleven species, all African, are accepted here as members of the genus. For *M. concolor* Dohrn and *M. cornuta* Hsiao, see *Pseudomyia*; for *M. suspecta* Schouteden, see *Paramyla*. *M. schnelli* Villiers was transferred to *Clavigralla* by Dolling (1979a: 34).

DISTRIBUTION. Africa south of the Sahara, including Ethiopia. Not so far recorded from any islands or from Arabia.

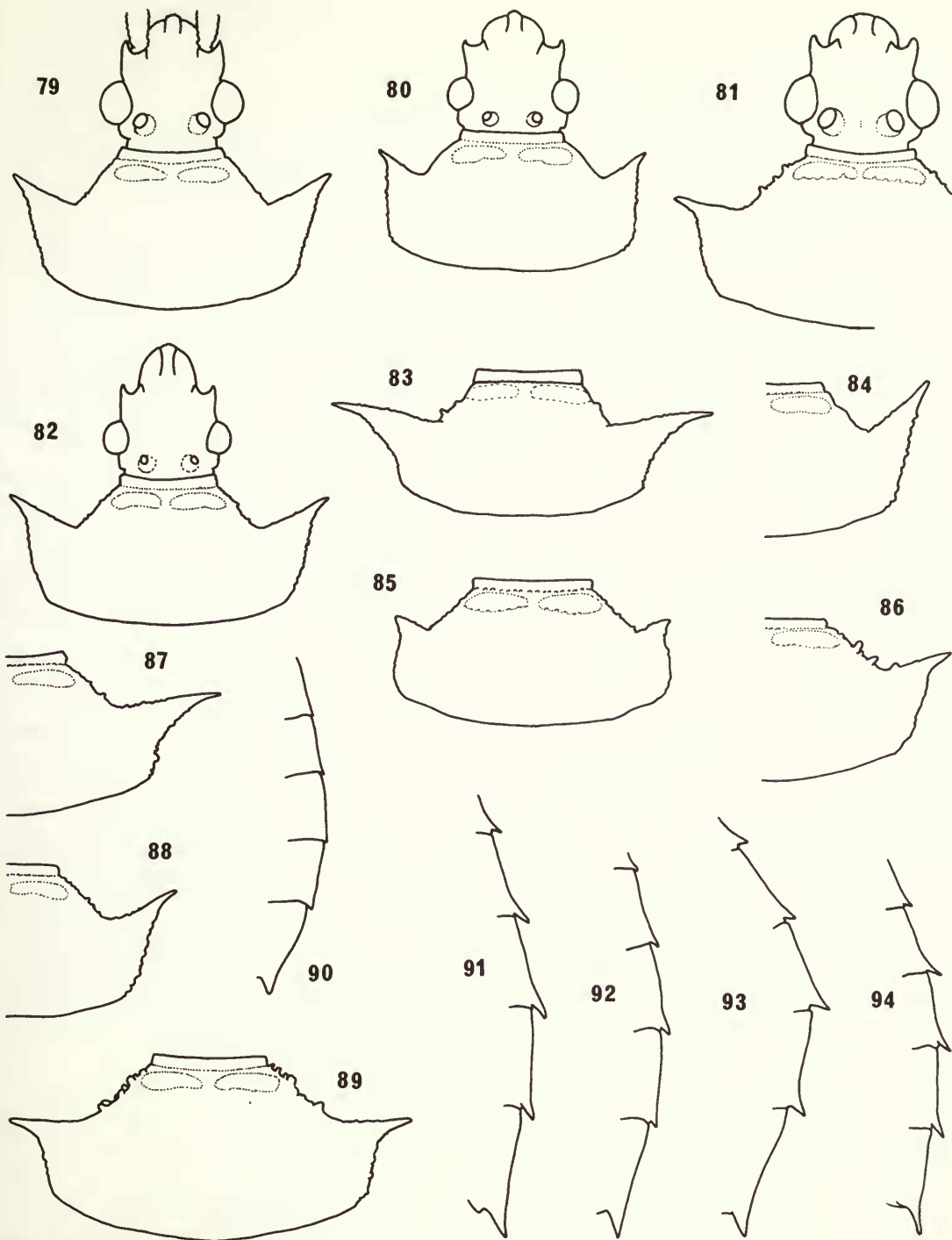
Key to species

- 1 Length of antennal segment I divided by width of head including eyes 0·84 or less; in doubtful cases width of pronotum across apices of posterolateral spines divided by width of head 2·22 or less. 2
- Length of antennal segment I divided by width of head including eyes 0·85 or more; in doubtful cases width of pronotum across apices of posterolateral spines divided by width of head more than 2·30. 4
- 2 Length of antennal segment I divided by width of head less than 0·54. (East Africa, rare) *dispar* (p. 198)
- Length of antennal segment I divided by width of head more than 0·54. 3
- 3 Pronotum (Fig. 85) with posterolateral spines very short. (Mountains of East Africa) *niokensis* (p. 201)
- Pronotum (Fig. 80) with posterolateral spines longer. (Cameroun) *oncoroma* (p. 203)
- 4 Pronotum (Fig. 89) with posterolateral spines short, laterally directed; tibiae (Fig. 95) with alternate dark and light annuli. (East Africa, rare) *lata* (p. 200)
- Pronotum (Figs 79, 81–84, 86–88) with posterolateral spines longer, directed anterolaterally; tibiae stramineous, unicolorous 5
- 5 Pubescence of body (Fig. 98) long, individual scale-like hairs of thorax longer than distance between their insertions. (West and Central Africa) *gracilis* (p. 204)
- Pubescence of body (Fig. 97) short, individual scale-like hairs of thorax shorter than distance between their insertions 6
- 6 Ocelli (Fig. 81) very large, distance between ocellus and eye less than half diameter of ocellus. (East Africa) *somalica* (p. 200)
- Ocelli (Figs 79, 82) smaller, distance between ocellus and eye equal to or greater than diameter of ocellus. 7
- 7 Head (Fig. 82) elongate, apically acute, its midline fuscous; eyes small. (Widespread in Africa) *microphthalmia* (p. 202)
- Head (Fig. 79) short, apically obtuse, its midline not fuscous; eyes larger. 8
- 8 Lateral margins of pronotum (Fig. 86) bearing large, prominent granules. (Southern Africa, rare) *granula* (p. 198)
- Lateral margins of pronotum (Figs 79, 84, 87, 88) with smaller granules. 9
- 9 Posterolateral angles of pronotum and abdominal sternites (Fig. 92) less prominent. (Ethiopia) *abyssinica* (p. 197)
- Posterolateral angles of pronotum (Figs 79, 84, 87, 88) and abdominal sternites (Fig. 91) more prominent. 10
- 10 Paramere (Figs 99, 100) with apical tooth projecting beyond apex of shaft; second valvula (Fig. 119) apically rounded. (West and Central Africa) *hoploxys* (p. 194)
- Paramere (Fig. 104) with apical tooth not projecting beyond apex of shaft; second valvula (Fig. 120) obliquely truncate, with apex acute. (Central, eastern and southern Africa) ... *calida* (p. 197)

Myla hoploxys (Dallas)

(Figs 79, 84, 91, 96, 99, 100, 119)

Clavigralla? hoploxys Dallas, 1852: 515. Holotype ♂, GAMBIA (BMNH) [examined].



Figs 79–94 *Myla* species. 79–82, dorsal view of head and pronotum of (79) *hoploxys*; (80) *onceroma*; (81) *somalica*; (82) *microphthalma*. 83–89, dorsal view of pronotum of (83) *gracilis*, lectotype; (84) *hoploxys*; (85) *niokensis*; (86) *granula*; (87) *calida* from Zaire: Mpese; (88) *calida*, holotype from Uganda; (89) *lata*, holotype. 90–94, ventral view of abdominal margin of (90) *niokensis*; (91) *hoploxys*; (92) *abyssinica*; (93) *lata*, holotype; (94) *gracilis*.

Myla nigrispina Stål, 1866: 111. LECTOTYPE ♀, 'GUINEA' (NMV), here designated [examined]. **Syn. n.**

Myla hoploxys (Dallas) Stål, 1873: 84.

Myla hoploxys nigrispina Stål; Linnavuori, 1971: 176.

Length: ♂, 9.8–11.7 mm; ♀, 9.7–12.0 mm.

Head (Fig. 79) slightly longer than wide, broadly rounded anteriorly. Length of antennal segment I divided by width of head including eyes in male 0.88–1.16, in female 0.89–1.09. Ratio of lengths of antennal segments in male about 1.00:0.80:1.03:0.96, in female about 1.00:0.84:1.04:0.85. Length of rostral segment I divided by width of head including eyes in both sexes 0.69–0.81, ratio of lengths of rostral segments about 1.00:0.84:0.43:0.64.

Pronotum (Figs 79, 84) with posterolateral angles produced anterolaterally and terminating in short spines, lateral margins very weakly granulate. Width across apices of posterolateral spines divided by width of head including eyes in male 2.14–2.84, in female 2.20–2.92. Length of posterior tibia divided by that of posterior femur 0.89–1.06.

Abdomen rather narrow, its lateral margin (Fig. 91) weakly convex, posterolateral angles of sternites III–VII projecting as fairly short, narrow, posteriorly directed spines; abdominal laterotergites narrow, laterotergite V usually at least twice as long as wide, rarely slightly less. Paramere (Figs 96, 99, 100) with apical tooth long, upcurved, its posterior margin projecting distinctly beyond apex of shaft. Aedeagus very similar in all respects to that of *M. calida*, q.v. Female with second valvula of ovipositor (Fig. 119) terminating in an apically rounded lobe.

Pubescence of head, all exposed parts of thorax, abdominal laterotergites, antennal segment I, femora, clavus and corium composed of short, flattened, scale-like, decumbent or adpressed, white hairs, each hair much shorter than the distance between its own insertion and that of its nearest neighbour, each insertion borne on a large granule on the head and a small granule elsewhere, granules of thoracic pleurites, posterior lobe of pronotum, scutellum and hemelytra each positioned on the anterior (or proximal on hemelytra) border of a large puncture. Pubescence of disc of abdominal venter suberect, not scale-like, grading laterally into white, scale-like type. Pubescence of antennal segments II to IV, tibiae and tarsi suberect, rather short, not scale-like.

General coloration of body and appendages greyish yellow, more or less heavily suffused red. Antennal segments II and III, tibiae and tarsi stramineous. Apex of rostral segment IV, posterolateral angles and spines of pronotum and often a line along lateral margins of pronotum piceous. Membrane of hemelytra whitish hyaline, its veins brown with frequent whitish hyaline interruptions. Elevated apex of scutellum and dorsal ridge of metathoracic peritreme white, the latter often margined piceous.

REMARKS. This and the next four species form a group of closely related taxa which are probably all rather variable in pronotum shape, size and coloration. Examination of the genitalia is the only completely reliable way of distinguishing between this species and *M. calida*, with which it is partly sympatric. Although the genitalia of the female lectotype of *M. nigrispina* were not dissected out, the specimen corresponds in every other way with the West African species recognized here as *M. hoploxys*. No other species of this complex was detected in the area of the type-locality of *M. nigrispina* ('Guinea', = West Africa). There is no justification for Linnavuori's (1971: 175, 176) recognition of two, largely sympatric subspecies distinguished by size, colour and some slight, probably allometric structural features. Large, red individuals with long posterolateral pronotal spines predominate in the western part of the range of the species and are rare in the eastern part. This species includes cowpea (*Vigna*) in its diet and, according to Professor A. E. Akingbohunge (pers. comm.), it is approaching the pest status of the *Clavigralla* species on this crop.

DISTRIBUTION. Proven distribution covers West Africa from Senegal and Gambia eastwards to Zaire and Angola. Linnavuori (1978: 36) records a single specimen from Sudan.

MATERIAL EXAMINED

Gambia: 1 ♂ (holotype of *hoploxys*), (no other data) (BMNH). 'Guinea': 1 ♀ (lectotype of *nigrispina*) (coll. Signoret), (NMV).

Gambia: 1 ♂ (no further locality data; pin and locality label identical with those of holotype of *C. hoploxys* but also with label: 'Saunders Coll.'): 1 ♀, 3.iii.1911 (*Simpson*) (BMNH). **Senegal:** 1 ♂, Bambey, 6.v.1943 (*Risbec*) (BMNH); 1 ♂, 2 ♀, M'Bambey, 28.x–6.xi.1939 (*Risbec*) (MRAC). **Ivory Coast:** 4 ♂, Lamto, 7.v.1963, 14.v.1963, 28.v.1963, 18.vi.1963; 3 ♀, Lamto (Toumodi), 18.ii.1964, 24.vii.1964; 1 ♀, Bouaké, 21.vii.1962 (probably all leg. *Gillon*) (BMNH); 2 ♂, Bouaké, ii.1968 (*Schmitz*) (MRAC). **Ghana:** 1 ♀, Tafo, 8.xi.1965 (*Leston*); 1 ♂, Labadi, 12.ix.1965 (*Leston*) (BMNH); 1 ♂, Namgua, 30.ii.1964, on cowpeas; 1 ♂, 1 ♀, Sokode, 7.xi.1967 (*Leston*); 1 ♀, (locality illegible), 8.xii.1965 (*Leston*); 1 ♀, Legon, 22.ix.1968, in u.v. trap (*Kumar*); 1 ♀, Abouadi, 7.xi.1976 (*Leston*) (UG). **Mali:** 1 ♂, 40 miles

(64 km) SW. of San, 300 m, 26.viii.1966 (Ross, Lorenzen) (CAS). **Nigeria**: 1 ♂, Ibadan, 30.xi.1976 (Deeming) (IAR); 1 ♂, Ile-Ife, 5.xii.1970 (Medler); 1 ♀, Ile-Ife, 14.ii.1974 (Akingbohunbe); 1 ♀, Badeggi, 19.iii.1972 (Medler) (Ife University); 1 ♀, Azare, 1928–1929 (Lloyd); 1 ♂, 1 ♀, Zaria, Samaru, 9.viii.1966, 21.ix.1967 (Deeming); 1 ♀, Zaria, Samaru, 14.ix.1966, on cowpea (*Vigna*) (Deeming); 1 ♀, Samaru, 11.iii.1955, at grass roots (Emsley); 4 ♂, 1 ♀, Samaru, 7–14.vii.1970, 28.viii.1970, 8–15.ix.1970 (Ward); 1 ♀, Ilorin, 19.iii.1955, in dry humus (Emsley); 1 ♀, Jos, 9.x.1955 (Bechyne); 1 ♂, Ibadan, DFR nursery, yellow tray trap, 30.ix.1963 (White); 1 ♂, Enugu, 22.x.1955 (Bechyne); 1 ♀, Lagos 'hinterland' (Rowland) (BMNH); 1 ♂, 1 ♀, Jos province, 7–26.iv.1963 (Meussen, Bouquiaux) (MRAC). **Zaire**: 1 ♀, Bambesa, 22.i.1938 (Vrydagh); 1 ♀, Katanga, Nyonga (? = Nyanga), v.1925 (de Witte); 1 ♀, Wombali, vii.1919 (Vanderijst); 1 ♂, 2 ♀, Lulua, Kapanga, iii.1932, iii.1933 (Overlaet) (MRAC). **Angola**: 1 ♂, João de Almeida, 29.iii.1972 (BMNH Expedition) (BMNH). 'Tropical Africa': 2 ♂ (UM).

Myla abyssinica Linnavuori

(Figs 92, 97, 102)

Myla abyssinica Linnavuori, 1971: 175. Lectotype ♂, ETHIOPIA: near Nazareth, 20–21.vi.1963 (*Linnavuori*) (R. Linnavuori coll.), designated by Linnavuori, 1978: 36 [not examined].

Length: ♂, 9.9–10.1 mm; ♀ unknown.

Very similar to *M. hoploxys*. Length of antennal segment I divided by width of head including eyes 0.88–0.93. Ratio of lengths of antennal segments about 1.00:0.80:1.05:1.04. Length of rostral segment I divided by width of head including eyes 0.69–0.75. Ratio of lengths of rostral segments about 1.00:0.84:0.45:0.64. Pronotum with posterolateral spines as short as in the shortest-spined examples of *M. hoploxys*; width across apices of spines divided by width of head including eyes 2.16–2.21. Connexivum narrow, laterotergite V about 2.5 times as long as wide. Posterolateral spines of sternites III to VII short (Fig. 92). Length of posterior tibia divided by length of posterior femur 0.96. Paramere (Fig. 102) with apical tooth relatively shorter than that of *M. hoploxys*.

REMARKS. This species was described by Linnavuori (1971: 175) in a dichotomous key. Subsequently, the same author (Linnavuori, 1978: 21, 36, 103, figs 16f, 16g, 69d) provided a fuller description, with figures, suggesting at the same time that it might be only a race of *M. hoploxys*. In his 1978 publication, he designated his unique specimen as holotype. As he already validly described the species in 1971, without designating a type-specimen, his 1978 action must be regarded as a lectotype designation. In view of the small differences separating species in this genus it seems appropriate to accord full specific status to this taxon, especially as the two specimens examined here are very similar to the one described by Linnavuori. The strong reddish suffusion noted by Linnavuori (1978) in the type-specimen is not apparent in the two specimens I have seen.

DISTRIBUTION. Endemic to Ethiopia on the available evidence.

MATERIAL EXAMINED

Ethiopia: 1 ♂, Djoudjou Abayi, Didessa R., Goma, 2000 ft (600 m), 10.v.1905 (*Zaphiro*) (BMNH); 1 ♂, Gemu-Gofa Prov., 45 km N. of Demika, near Jinka road, 1460 m, 30.iv.1974 (*de Rougemont*) (MRAC).

Myla calida sp. n.

(Figs 87, 88, 101, 111–114, 120)

Length: ♂, 9.0–10.6 mm; ♀, 9.0–10.3 mm.

Very similar to *M. hoploxys*. Length of antennal segment I divided by width of head including eyes in male and female 0.92–1.05. Ratio of lengths of antennal segments in male about 1.00:0.75:0.95:0.94, in female about 1.00:0.80:0.95:0.82. Length of rostral segment I divided by width of head including eyes in male 0.66–0.75, in female 0.69–0.79. Ratio of lengths of rostral segments in male about 1.00:0.85:0.43:0.64, in female about 1.00:0.85:0.42:0.61.

Pronotal shape variable (Figs 87, 88), posterolateral spines on average more strongly divergent than those of *M. hoploxys*; width across apices of posterolateral spines divided by width of head including eyes in male 2.30–2.85, in female 2.31–2.62. Granulation of lateral margins of pronotum slightly more pronounced than in *M. hoploxys*. Length of posterior tibia divided by length of posterior femur 0.89–0.95.

Connexivum and abdominal spines as in *M. hoploxys*. Paramere (Fig. 101) with apical tooth shorter than that of *M. hoploxys*, its posterior margin not or scarcely projecting posteriad of apex of shaft. Aedeagus

(Figs 111–114) of the form usual in the genus. Ovipositor with second valvula (Fig. 120) obliquely truncate, apex acute and slightly upturned.

Coloration on average more yellowish than greyish, never as deeply suffused red as the most extreme examples of *M. hoploxys*.

REMARKS. The second valvula of this species is very distinctive. The shape of the paramere is rather variable but it is never so long as that of *M. hoploxys*, nor is its apical tooth so long or so prominent. The shape of the pronotum is also variable (compare Figs 87, 88), as is the colour. In many individuals there is a conspicuous black line along the lateral margins of the pronotum.

DISTRIBUTION. Eastern, central and southern Africa. Absent from West Africa. Northern limit unknown.

MATERIAL EXAMINED

Holotype ♂, **Uganda**: W. shores of Vic. Nyanza, Buddu, 3700 ft (1100 m), 19–25.ix.1911 (*S. A. Neave*) (BMNH).

Paratypes. **Zaire**: 1 ♂, 1 ♀, Ngowa, 5.vi.1939, 16.vi.1939 (*Mertens*); 1 ♂, Kwango, Ngowa, 3.x.1937 (*Mertens*); 1 ♂, 1 ♀, Ngowa-Kwango, no date and 17.ii.1938 (*Mertens*); 1 ♂, Kibangula, 1957 (*Henry*); 1 ♂, 2 ♀, Mpese, 7–26.vi.1937 (*Cooreman*) (IRSNB); 1 ♂, Sankuru, M'Pemba Zeo (Gandajika), 17.vii.1958 (*Marechal*); 1 ♂, Kwango, Popokabaka, v.1952 (*Pierquin*); 1 ♂, Kasai, Ilebo (Théry); 1 ♂, Bokala, 20.v.1915 (*Mayné*); 1 ♂, Tolo, early xii.1913 (*Maes*); 1 ♂, Kivu, Kavimvira (Uvira), vi.1955, at light (*Marlier*); 1 ♂, Kinshasa (*Tynant*); 1 ♂, Lita, 25.v.1912 (*Christy*); 1 ♂, 'Dans le ebenal. Post Telegraphiq au dessous de Block river, 22 Mai 1909. Herbes et arbustes à 3–4 au dessus du fleuve, endroit non boisé, 1 à 17 heures' (*Voyage de S.A.R. le Prince Albert*); 1 ♀, Kisantu, 1925 (*Varderijst*); 2 ♀, Lulua, Kapanga, i.1933, v.1933 (*Overlaet*); 1 ♀, Sankuru, M'Pemba Zeo (Gandajika), 28.iv.1960 (*Maréchal*); 1 ♀, Mayidi, 1942 (*van Eyen*); 1 ex. without abdomen, Bas-congo, Lemfu, vi.1945 (*de Beir*) (MRAC); 6 ♂, 13 ♀, Faradje, 29°40'E, 3°40'N (*Lang, Chapin*) (AMNH). **Zambia**: 1 ♂, 1 ♀, High Plateau, L. Tanganyika, 4500 ft (1350 m), 18–21.viii.1908 (*Neave*) (UM). **Angola**: 1 ♂ (other data illegible) (BMNH). **Zimbabwe**: 1 ♂, Salisbury, v.1963 (NMB); 1 ♀, Umtali (BMNH). **South Africa**: 1 ♂, Durban, 1902 (*Muir*) (BMNH).

Myla dispar sp. n.

(Fig. 104)

Length: ♂, 9.6 mm; ♀, unknown.

Resembles *M. hoploxys* in most respects, including the shape of the paramere (Fig. 104), which distinguishes it from *M. calida*. Lateral margins of pronotum rather more strongly granulate than those of *M. calida* and posterolateral spines of pronotum short. Length of antennal segment I divided by width of head including eyes 0.53. Ratio of lengths of antennal segments as 1.00:0.82:1.06:1.18. Width of pronotum across apices of posterolateral spines divided by width of head including eyes 2.22. Length of posterior tibia divided by that of posterior femur 0.92.

REMARKS. Perhaps this is an outlying representative of *M. hoploxys* but it differs from that species and from *M. calida* in the relative lengths of the antennal segments, of which I and II are very short and III and IV longer with respect to I.

DISTRIBUTION. Zambia.

MATERIAL EXAMINED

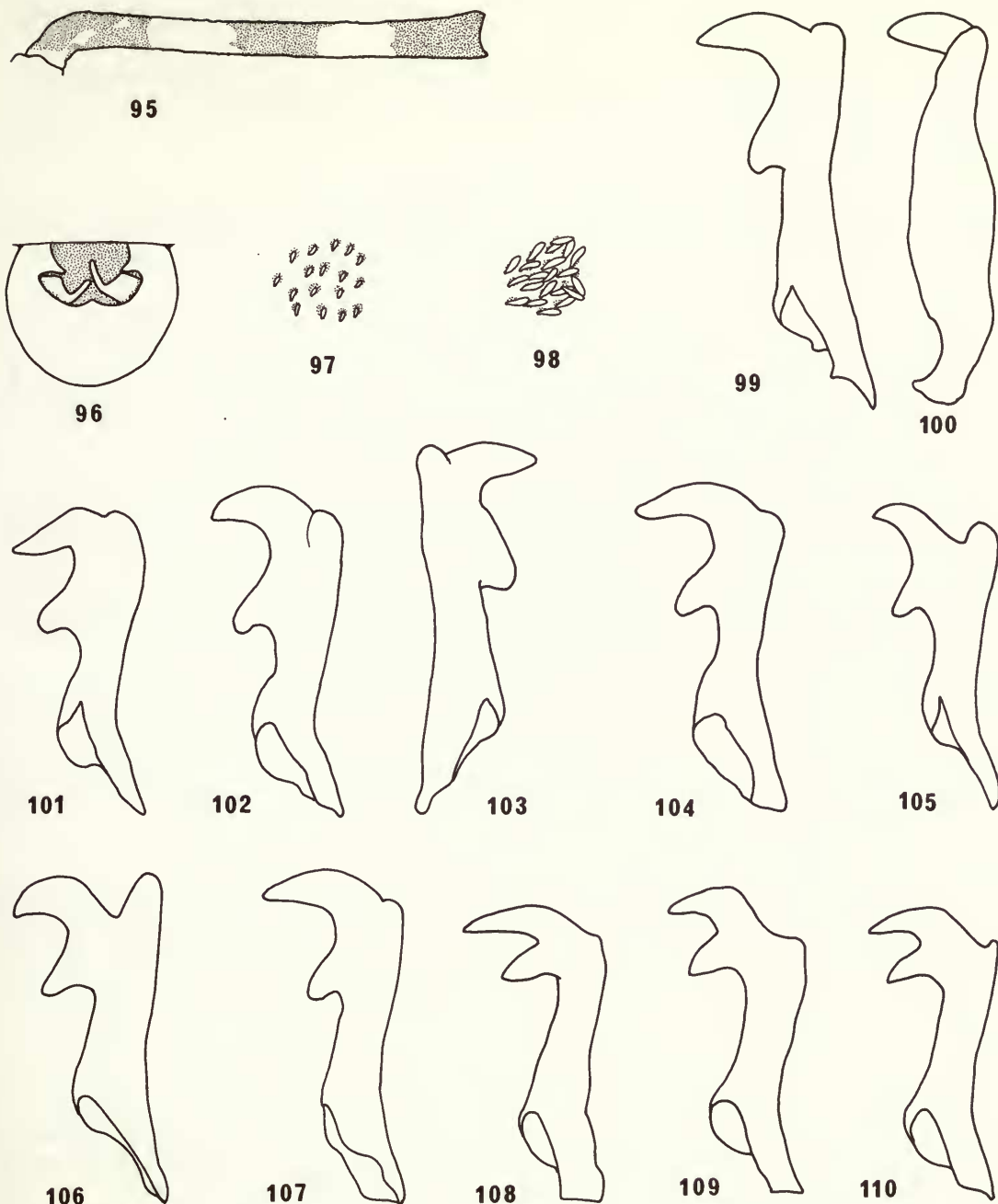
Holotype ♂, **Zambia**: L. Bangweolo, Chirui Island, 3800 ft (1140 m), 5–7.vii.1908 (*Neave*) (UM).

Myla granula sp. n.

(Figs 86, 121)

Length: ♂, unknown; ♀, 10.2–10.4 mm.

Resembles *M. hoploxys* and *M. calida* in general form. Length of antennal segment I divided by width of head including eyes 0.85–0.93. Ratio of lengths of antennal segments in holotype as 1.00:0.84:1.00:0.95, in paratype as 1.00:0.82:0.92:0.91. Length of rostral segment I divided by width of head including eyes 0.66–0.69. Ratio of lengths of rostral segments in holotype as 1.00:0.87:0.40:0.60, in paratype as 1.00:0.94:0.44:0.67. Pronotum (Fig. 86) with posterolateral angles produced laterally almost perpendicular to axis of body, posterolateral spines very short, width across apices of spines divided by width of head including eyes 2.34–2.37; lateral margins bearing very large granules. Length of posterior tibia divided by



Figs 95–110 *Myla* species. 95, *lata*, posterior tibia. 96, *hoploxys*, posterior view of male genital capsule with parameres. 97, 98, detail of pubescence of left metapleuron of (97) *abyssinica*; (98) *gracilis*. 99, *hoploxys*, dorsomedial view of left paramere. 100, *hoploxys*, lateral view of same. 101, 102, dorsomedial view of left paramere of (101) *calida*; (102) *abyssinica*. 103, *somalica*, dorsomedial view of right paramere, 104–110, dorsomedial view of left paramere of (104) *dispar*; (105) *microphthalma*; (106) *niokensis*; (107) *lata*; (108) *gracilis* from Zaire: Ngowa; (109, 110) *gracilis*, two specimens from Zaire: Faradje.

length of posterior femur 0.95–0.99. Ovipositor with second valvula (Fig. 121) symmetrically tapering towards narrowly rounded apex.

REMARKS. This species differs from *M. hoploxys* and *M. calida* mainly in the shape and granularity of pronotum. The second valvulae of the ovipositor are characteristic; males are unknown.

DISTRIBUTION. South Africa.

MATERIAL EXAMINED

Holotype ♀, South Africa: Natal, Malvern, 11.vi.1897 (BMNH).

Paratype. South Africa: 1 ♀, Natal, Lewombo Mission, 31°40'E, 28°35'S, 15.x.1977, 365 m, under brick pile (Reavell) (NMP).

Myla somalica Linnavuori

(Figs 81, 103)

Myla somalica Linnavuori, 1982: 14–16. Holotype ♂, SOMALI REPUBLIC: Giohar, 18–20.iv.1968 (*Spedizione Biologica in Somali del Centro di Studio per la Faunistica ed Ecologia Tropicali del Consiglio Nazionale delle Ricerche*) (Museo Zoologico dell'Università di Firenze) [not examined].

Length: ♂, 10.5–11.5 mm; ♀ unknown.

An elongate species related to *M. calida*. Ocelli very large (Fig. 81). Length of antennal segment I divided by width of head including eyes 0.85–0.99. Ratio of lengths of antennal segments about 1.00:0.82:0.97:1.08. Length of rostral segment I divided by width of head including eyes 0.70–0.71. Ratio of lengths of rostral segments about 1.00:0.87:0.42:0.66.

Pronotum (Fig. 81) with posterolateral angles shortly produced laterally, with slight anteriad inclination; width across apices of posterolateral spines divided by width of head including eyes 2.31–2.44. Posterior tibia long, its length divided by that of posterior femur 0.96–1.03.

Paramere (Fig. 103) with shaft long, as in *M. hoploxys*, teeth of blade short, as in *M. calida*.

REMARKS. This species is readily distinguished from all others of the genus by its enormous ocelli. The paratype was received after the above measurements were taken. It is 9.8 mm long, its first antennal segment is 0.90 times the width of the head and the antennal ratio is 1.00:0.79:1.07:1.08. The paramere is indistinguishable from that of the inland specimens with which it seems to be conspecific despite the difference in habitat.

DISTRIBUTION. Highlands of eastern central Africa to the Somali coast.

MATERIAL EXAMINED

Somali Republic: 1 ♂ (paratype). Giohar, 18–20.iv.1968 (*L. Simonetta*) (R. Linnavuori coll.). **Kenya:** 1 ♂, Nakuru, viii.1912 (*van Someren*) (BMNH). **Uganda:** 1 ex. without abdomen (probably ♂), Chisinga, viii.1911 (*Marshall*) (BMNH). **Zaire:** 3 ♂, Parc National Albert, Camp Ruindi (or Rwindi), 1000 m, 20–28.xi.1934 (*de Witte*); 2 ♂, P.N.A., Cp Ruindi, 13.ix.1932 (*Burgeon*) (MRAC).

Myla lata sp. n.

(Figs 89, 93, 95, 107)

Length: ♂, 9.8–10.8 mm; ♀ unknown.

A very broad-bodied species. Length of antennal segment I divided by width of head including eyes in holotype 0.88. Remainder of antennae in holotype and whole of antennae in paratype missing. Length of rostral segment I divided by width of head including eyes in paratype 0.70; ratio of lengths of its rostral segments as 1.00:0.80:0.45:0.63; rostrum not visible in holotype mount.

Pronotum (Fig. 89) very broad, lateral margins strongly granulate, posterolateral angles weakly produced, terminating in small, laterally directed spines; width across apices of posterolateral spines divided by width of head including eyes 2.52–2.56.

Abdomen broad, its lateral margins (Fig. 93) strongly convex, posterolateral angles of sternites III to VII produced into broad, triangular spines. Connexivum broad, laterotergite V about five-sixths as broad as long. Paramere (Fig. 107) with both teeth of blade on a common stem.

Coloration ferruginous; all tibiae stramineous with basal, median and apical annuli piceous (Fig. 95).

REMARKS. This species is very distinctive by reason of its great breadth. It is the only species of the genus in which the tibiae are conspicuously bicolorous.

DISTRIBUTION. Central Africa.

MATERIAL EXAMINED

Holotype ♂, **Zambia**: N. Lake Bangweolo, 4200 ft [1260 m], Luwingu, 21.vii.1908 (*Neave*) (UM).
Paratype. **Zaire**: 1 ♂, Katanga, Lufira River, 3500 ft [1050 m], 10.ix.1907 (*Neave*) (BMNH).

Myla niokensis Schouteden

(Figs 85, 90, 106)

Myla niokensis Schouteden, 1938: 294. LECTOTYPE ♂, ZAIRE (MRAC), here designated [examined].
Myla (Paramyla) niokensis Schouteden; Linnavuori, 1971: 178.

Length: ♂, 8.2–9.3 mm; ♀, 8.7–9.7 mm.

Head similar in shape to that of *M. hoploxys*. Antennae, especially segment I, short. Length of antennal segment I divided by width of head including eyes in male 0.56–0.74, in female 0.55–0.69. Ratio of lengths of antennal segments in male about 1.00:0.95:1.14:1.48, in female about 1.00:1.04:1.09:1.33. Length of rostral segment I divided by width of head including eyes in both sexes 0.64–0.75. Ratio of lengths of rostral segments about 1.00:0.85:0.44:0.64.

Pronotum (Fig. 85) with posterolateral angles produced forward, their apices directed laterally but very weakly produced in that direction, terminating in very short spines, margins behind the produced angles concave, diverging posteriorly so that in most cases greatest width of pronotum is not across apices of posterolateral spines but across posterior lobe; width across apices of posterolateral spines divided by width of head including eyes in male 1.88–2.16, in female 2.00–2.22. Length of posterior tibia divided by length of posterior femur in both sexes 0.94–1.06.

Abdomen with lateral margin (Fig. 90) moderately convex; posterolateral angles of sternites III to VI weakly prominent. Connexivum moderately broad, laterotergite V about 1.7 times as long as wide. Paramere (Fig. 106) very similar to that of *M. hoploxys*.

Colour yellow-brown with punctures of pronotum and hemelytra and often parts of underside and posterior femora piceous or black; body and appendages often with a reddish tinge. The darkest species of the genus. Pubescence as in *M. hoploxys*. Granules of lateral margins of pronotum about as prominent as those of *M. hoploxys*.

REMARKS. This species may easily be recognized by the form of the pronotum, except that it might be confused with *M. abyssinica* from which it differs in that its antennal segment I is much shorter and segment IV is very long compared with I. Specimens from Zaire have the apical tooth of the paramere slightly shorter than it is in those from Ethiopia and Kenya. Ethiopian specimens differ from the others in having a slightly longer rostral segment IV. Antennal segment I is shortest, both in proportion to head width and in proportion to the other segments, in Kenyan specimens and longest in those from Zaire. The numbers of specimens available are too low for it to be certain that these distinctions are not artefacts of sampling.

DISTRIBUTION. Records suggest that the species occurs at high altitudes in three separate areas: Ethiopia; near Nairobi in Kenya; and on the common borders of Zaire, Uganda, Tanzania and Rwanda.

MATERIAL EXAMINED

Zaire: 1 ♂ (lectotype), Ituri, Nioka, 7.vii.1934 (*Leroy*) (labelled: 'holotypus') (MRAC).
Ethiopia: 1 ♂, Mt Chilalo, forest, ca 8500 ft (2550 m), 24.xi.1926 (*Scott*); 1 ♂, Gojjam, Fasilo Bahr Dar, scrub, 2.viii.1965 (*Kitching*); 1 ♂, Addis Ababa, Filoá, vii.1941 (*Meneghetti*); 1 ♀, Simien, Atgheba Ghiyorghis, ca 10,900 ft (3270 m), 4.xii.1952, arable land (*Scott*); 1 ♀, Urgessa R., Jimu, 2300 ft (690 m), 3.v.1905 (*Zaphiro*); 1 ♀, Mt Zuqála, in crater, ca 9000 ft (2700 m), 26.x.1926 (*Omer Cooper*) (BMNH).
Zaire: 3 ♀ (paralectotypes), Ituri, Nioka, vii.1934 (*Leroy*); 1 ♀ (paralectotype), Ituri, Nioka, 7.vii.1934 (*Leroy*); 1 ♂, Nioka, vii.1934 (*Leroy*); 1 ♂, Tshamgussa, 8–15.viii.1934 (*de Witte*); 1 ♀, Parc Nat. Albert, Lac Gando, 2600 m, Mt Tamira, 11.iii.1935 (*de Witte*); 1 ♂, Kivu, Mulungu-Tshibinda, xi.1951 (*Lefèvre*) (MRAC); 1 ♀, Ituri Forest, 40 miles (64 km) NNE. of Beni, 3000 ft (900 m), 10–12.ix.1959, indigenous forest with cultivated patches (*Cambridge Expedition*); 1 ♀, Butembo-Beni road, 29°30'E, 0°25'N, 4000 ft (1200 m), 11.ix.1959, agricultural district (*Cambridge Expedition*) (BMNH).
Uganda: 1 ♂, Kasinga Channel, Katunguru, 1931 (*Worthington*) (BMNH).
Kenya: 1 ♂, Limuru, 10.iii.1911 (*Anderson*); 1 ♂, Kinangop, iii.1930 (*Turner*); 2 ♂, W. Aberdares, above 9000 ft (2700 m), iii–iv.1934 (*Turner*); 1 ♀, SE. slopes of Mt Kenya, 6000–7000 ft (1800–2100 m), 3–12.ii.1911 (*Neave*) (BMNH).
Rwanda: 1 ♂, Rubengera, 1900 m, terr. Kibuye, 12.ii.1953 (*Basilewsky*) (MRAC).
Tanzania: 1 ♀, Mt Meru, Olkokola, facing NW., 2800 m, 24.vi–1.viii.1957 (*Basilewsky, Leleup*) (MRAC). No data: 1 ♂ (ex coll. *Schouteden*) (MRAC).

Myla microphthalma Linnavuori

(Figs 82, 105, 115, 117)

Myla microphthalma Linnavuori, 1971: 175, 176–177. Holotype ♂, IVORY COAST: Lamto, 3.iii–21.iv.1967 (Gillon) (R. Linnavuori coll.) [not examined].

Length: ♂, 8.3–9.7 mm; ♀, 8.6–9.9 mm.

Head (Fig. 82) more elongated and more acutely pointed anteriorly than is usual in the genus, eyes small. Length of antennal segment I divided by width of head including eyes in males from the type-locality (Ivory Coast) 0.91–0.97, in females from type-locality 0.90–0.97, in males and females from elsewhere respectively 0.76–0.93 and 0.76–0.91. Ratio of lengths of antennal segments in males and females from Ivory Coast respectively about 1.00:0.86:1.05:0.98 and 1.00:0.88:1.04:0.85; in males and females from elsewhere respectively about 1.00:0.88:1.05:1.17 and 1.00:0.90:1.05:1.03. Length of rostral segment I divided by width of head including eyes in both sexes 0.72–0.84; ratio of lengths of rostral segments about 1.00:0.85:0.44:0.67.

Pronotum (Fig. 82) with posterolateral angles rather strongly produced anterolaterally and lateral margins finely granulate with a few larger granules; width of pronotum across apices of posterolateral spines divided by width of head including eyes 2.15–2.65, not differing significantly between the sexes. Length of posterior tibia divided by length of posterior femur 0.89–0.98.

Abdomen with posterolateral angles of sternites III to VII produced as short, acute spines. Paramere (Fig. 105) with blade broad, distal margin of apical tooth evenly curved, apical tooth rather longer than basal tooth. Spermatheca (Fig. 115) with bulb short, duct tightly convoluted. Second valvula of ovipositor (Fig. 117) apically narrow, elongate, parallel-sided.

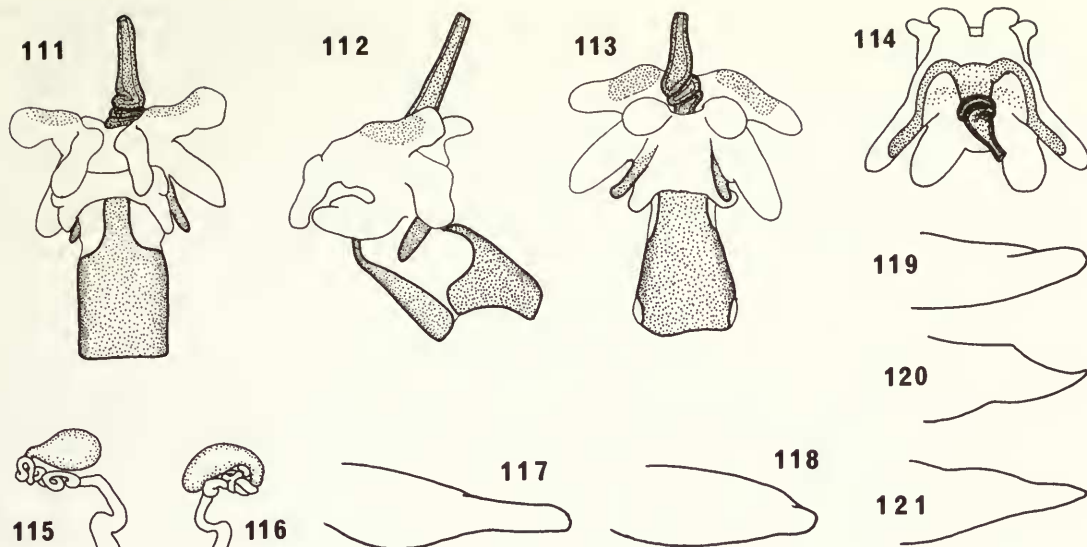
Coloration reddish or greyish brown, dorsal midline of head always with median fuscous stripe; pronotum with anterolateral margins, posterolateral spines and anterior half of midline fuscous. Colour pattern otherwise and pubescence as in *M. hoploxys*.

REMARKS. The fuscous midline of the head distinguishes this species from all others in the genus. The series from the type-locality (Ivory Coast: Lamto, Toumodi) was found to differ from the rest of the material examined in several biometric ratios, as indicated above. A particularly striking difference was found in the ratio of the lengths of antennal segments I and IV. The length of segment IV divided by that of segment I in five males and two females from the Ivory Coast was, respectively, 0.91–1.00 and 0.84–0.86; in 12 males and six females from the rest of Africa this value was, respectively, 1.02–1.30 and 1.00–1.10. Although the Ivory Coast sample size is small, the measurements of this ratio fall completely outside the range determined for specimens from the rest of Africa. It may be that the Ivory Coast population has been isolated from the remainder for a considerable period. Perhaps an ancestral population of this species was isolated in mountain refugia in east Central Africa and Guinea and has re-invaded the lower-lying areas from these two centres. One male is omitted from the description above because of its even more elongate head and its aberrant measurements. It is from Zaire: Mongende; its length is 9.0 mm; the width of its pronotum, length of antennal segment I and length of rostral segment I, all divided by the width of the head, are respectively 2.82, 1.03 and 0.84. The lengths of the four antennal segments are in the ratio of 1.00:0.84:0.97:1.00.

DISTRIBUTION. The species is known from two widely separated areas: (1) Ivory Coast and (2) southern Africa, avoiding desert and dense forest and extending northwards to 4°S in the west and 2°N in the equatorial mountains of the east.

MATERIAL EXAMINED

Ivory Coast: 6 ♂, 3 ♀, Lamto (Toumodi), 5.vi.1962, 12.vi.1962, 10.vii.1962, 4.vi.1963, 11.vi.1963, 27.viii.1963, 21.vii.1964 (Gillon); 1 ♀, Bouaké, 21.vii.1962 (Gillon) (BMNH). **Kenya:** 1 ♂, Kaimosi, iii–iv.1932 (Turner) (BMNH). **Rwanda:** 1 ♂ (paratype), Kibungu, 1500 m, 2.ii.1953 (Basilewsky) (MRAC). **Urundi:** 1 ♂ (?paratype – locality but not date cited in original description), Kitega, xi.1935 (Lefèvre); 1 ♀ (paratype), Kitega, vii.1935 (Lefèvre); 2 ♀ (paratypes), Usumbura, 1934 (Lefèvre) (MRAC). **Zaire:** 1 ♀, Uele, Wango, 29.vii.1931 (Brédo); 1 ♀, Ituri, Nioka, vii.1934 (Leroy); 1 ♂, Kivu, Mulungu, 1938 (Hendrickx); 1 ♂, Mayidi, 1942 (van Eyen); 1 ♂, Kisantu, 1919 (Vanderijst) (all paratypes); 1 ♂, Tshambi, xii.1934 (de Witte); 1 ♀, Rég. Thysville (Bas-Congo), 1959–1963 (Michaux); 1 ♀, Lulua, Kapanga, i.1933 (Overlaet); 1 ♂, Katanga, Kipopo, 29.x.1961 (Maréchal) (MRAC); 2 ♀, Elisabethville (= Lubumbashi), 25.iv.1939, 15.xi.1939 (Brédo) (IRSNB). **Zambia:** 1 ♂, Kamankundju River, Ikelenge, N. Mwinilunga, 5.v.1972 (Pinhey, de Moor) (NMB). **Angola:** 1 ♂, 12 miles (19 km) SW. of Luimbale, ca 1680 m, 20–21.iii.1972, general sweeping (BMNH Southern African Expedition) (BMNH). **Malawi:** 1 ♂, SE. shore Lake Nyasa, between Fort Maguire and Fort Johnston, 6–17.iii.1910



Figs 111–121 *Myla* species. 111–114, *calida*: (111) dorsal view of phallosome, conjunctiva and vesica; (112) lateral view of same, dorsal to left; (113) ventral view of same; (114) apical view of same. 115, 116, spermatheca of (115) *microphthalmalma*; (116) *onceroma*. 117–121, left lateral view of apex of left second valvula of ovipositor of (117) *microphthalmalma*; (118) *onceroma*; (119) *hoploxys*; (120) *calida*; (121) *granulata*.

(Neave) (BMNH). **South Africa**: 1 ♂, Transvaal, Pretoria, 26.xi.1973 (Jacobs); 1 ♂, Utrecht, 4.xi.1967 (Kroon); 1 ♀, Camperdown, 17.iv.1908 (Leigh) (TM); 1 ♂, Transvaal, 10 miles (16 km) NE. of Cullinan, 27.ii.1962 (Capener); 1 ♀, no precise data (Capener) (J. A. Slater coll.); 1 ♂, Umbilo (Bevis); 2 ♀, Transvaal, Argent, 29.iii.1942 (Capener); 1 ♀, Pondoland, Port St John, 15–31.v.1923 (Turner); 1 ♂, Natal, Tugela River, nr Weenen, iii.1897; 1 ♂, Natal, Karkloof, 10.ii.1897 (? or 2.x.1897); 1 ♂, 1 ♀, Natal, Howick; 1 ♂, Natal, Estcourt; 3 ♂, 2 ♀, Estcourt, xi.1896; 4 ♂, Estcourt (Marshall) (BMNH). Possibly belonging to this species: **Zaire**: 1 ♂, Mongende, 17.iv.1921 (Schouteden) (falsely labelled as a paratype of *Myla gracilis* Schouteden but not from a locality mentioned in the original description) (MRAC).

Myla onceroma sp. n.

(Figs 80, 116, 118)

Length: ♂, 8.2–9.2 mm; ♀, 8.6 mm.

Head (Fig. 80) not elongate or acute anteriorly. Eyes small. Length of antennal segment I divided by width of head including eyes in male 0.73–0.84, in female (one only seen) 0.78. Ratio of lengths of antennal segments in male about 1.00:0.83:1.02:1.19, in female as 1.00:0.81:1.04:1.04. Length of rostral segment I divided by width of head including eyes in male 0.70–0.75, in female 0.78. Ratio of lengths of rostral segments in male about 1.00:0.82:0.43:0.65, in female as 1.00:0.77:0.42:0.63.

Pronotum (Fig. 80) with posterolateral angles shortly produced anteriorly, bearing short spines; width across apices of spines divided by width of head including eyes in male 1.99–2.20, in female 2.03. Length of posterior tibia divided by length of posterior femur 0.94–0.97.

Abdominal sternites III to VII with posterolateral angles produced into short, acute spines. Male genitalia similar to those of *M. microphthalmalma*. Female with bulb of spermatheca (Fig. 116) longer than that of *M. microphthalmalma* and with apical projection of second valvula (Fig. 118) very short.

General coloration dark red-brown or brown. Midline of head and pronotum concolorous, without darker median stripe.

REMARKS. This small species is probably most closely related to *M. microphthalmalma* but may be distinguished from it by the much shorter antennae, shorter head and much less strongly produced pronotal angles, which approach the form of those of *M. niokensis* but bear longer apical spines. It is a montane

form, perhaps descended from the ancestral population that gave rise to *M. microphthalma* but is now greatly specialized, particularly in the form of the second valvulae of the ovipositor, after long isolation.

DISTRIBUTION. Known only from three localities at high altitudes in Cameroun and south-eastern Nigeria.

MATERIAL EXAMINED

Holotype ♂, **Cameroun**: Bamenda, 17.xii.1955 (*Bechyne, Exped. Mus. G. Frey*) (BMNH).

Paratypes. **Cameroun**: 4 ♂, as holotype but dates 7.xii.1955, 8.xii.1955, 13.xii.1955 and 17.xii.1955 (BMNH); 2 ♂, 1 ♀, Mt Bamboutos (MRAC).

Non-paratypic material (received after description was drawn up). **Nigeria**: 3 ♂, 4 ♀, SE. State, Obudu C.R., 21 and 23.iii.1971 (*Medler*) (University of Ibadan).

Myla gracilis Schouteden

(Figs 83, 94, 98, 108–110)

Myla gracilis Schouteden, 1938: 293. LECTOTYPE ♂, ZAIRE (MRAC), here designated [examined].

Myla graciloides Linnavuori, 1971: 175. Lectotype ♂, SUDAN: Equatoria prov., Yei-Maridi, 13–15.iv.1963, swampy meadow (*Linnavuori*) (R. Linnavuori coll.), designated by Linnavuori, 1978: 36 [not examined]. **Syn. n.**

Length: ♂, 8.4–9.8 mm; ♀, 9.00–10.0 mm.

Head distinctly longer than wide, narrowly rounded anteriorly. Length of antennal segment I divided by width of head including eyes in male 1.06–1.27, in female 1.06–1.25. Ratio of lengths of antennal segments in male about 1.00:0.87:0.94:0.86, in female about 1.00:0.87:0.93:0.80. Length of rostral segment I divided by width of head including eyes in both sexes 0.71–0.82. Ratio of lengths of rostral segments about 1.00:0.85:0.46:0.66.

Pronotum (Fig. 83) with posterolateral angles strongly produced anterolaterally, terminating in slender spines, anterolateral margins with one to three prominent, piceous or black tubercles; width across apices of posterolateral spines divided by width of head including eyes in male 2.57–3.18, in female 2.74–3.09.

Abdomen with posterolateral angles of sternites III to VII produced as fine spines (Fig. 94). Connexivum rather narrow; laterotergite V twice as long as wide. Paramere (Figs 108–110) slender, with apical tooth long and both teeth on a common stem that arises terminally or subterminally from the blade. Female with second valvula tapering to narrowly rounded apex.

Pubescence of head, pronotum, scutellum, thoracic pleura, abdominal venter laterally and basally, laterotergites, clavus, corium, antennal segment I, coxae, trochanters, femora and rostrum comprising fairly short, flattened, scale-like, decumbent (except on appendages), white hairs; hairs on thoracic pleura (Fig. 98) and declivent area of pronotum very distinctly longer than distance between adjacent hair insertions and tending to form three or four transverse bands on declivent area of pronotum. Areas of abdominal venter and appendages that are devoid of scale-like pubescence with short, suberect, colourless hairs.

Coloration generally as in *M. hoploxys* but never heavily tinged red. Scutellum with midline and small, apical knob usually creamy white. Large tubercles of anterolateral margins of pronotum and apices of posterolateral spines piceous to black. Veins of hemelytral membrane brown, uninterrupted.

REMARKS. This species differs from all others of the genus in the greater length of the scale-like pubescence. The posterolateral pronotal angles are more strongly produced in this species than in any of its congeners. The combination of these two features gives *M. gracilis* a superficial resemblance to *Clavigralla schnelli* (Villiers). Indeed, the type-series of *M. gracilis* contains three individuals of *C. schnelli*, one of which bears a label with the legend, 'holotypus'. This type designation has never been published and Schouteden's very detailed description of the antennifers, rostrum, antennae, femoral spines and male genital capsule leaves no doubt that he was describing a species of *Myla*. I have, therefore, ignored the unpublished 'holotype' designation and here select one of the 'paratypes' as lectotype. Linnavuori (1971: 175; 1978: 35–36) used the name *M. gracilis* for what is evidently *C. schnelli* and established the unnecessary new nominal species *Myla graciloides* for *M. gracilis* proper. In his 1971 paper, Linnavuori cites the localities Sudan, Congo and Ivory Coast but in 1978 he cites only the 'type' from Sudan; this citation is effectively a lectotype designation. There is some variation in the pronotal posterolateral spines which are usually laterally directed but sometimes anterolaterally directed.

DISTRIBUTION. West and Central Africa.

MATERIAL EXAMINED

Zaire: 1 ♂ (lectotype of *gracilis*), Yangambi, xii.1925 (*Ghesquière*) (labelled as paratype on pink rectangle but lectotype on purple-bordered disc) (MRAC)

Ivory Coast: 14 ♂, 20 ♀, Lamto, variously 'Lamto (Toumodi)', various dates from 4.xii.1962 to 14.viii.1964, all months except i, ii, xi, greatest numbers in vi; 5 ♂, 1 ♀, Bouaké, 22.v.1962, 21.vii.1962; 1 ♂, Dabov, 8.v.1964 (BMNH). **Ghana:** 1 ♂, 'Gold Coast' (*Cotterell*); 1 ♀, Yapi (*Simpson*); 1 ♀, Tafo, 9.v.1957, in yellow trays (*Eastop*) (BMNH); 2 ♂, 1 ♀, Tafo, 14.x.1966, 20.ii.1967, pyrethrum knockdown from cocoa (*Kumar, Leston*); 1 ♀, Legon, 2.x.1968 (*Kumar*); 1 ♀, Ho, 7.xi.1967 (*Leston*); 1 ♀, Shai Hill, 29.vii.1967 (*Leston*) (UG). **Togo:** 1 ♂, Missahoué, 650 m, vi.1963 (*Schach*) (MRAC). **Nigeria:** 1 ♀, Akpashe District, Udi, 27.x.1955 (*Bechyne*) (BMNH). **Zaire:** 73 ♂, 61 ♀, Faradje, 29°40'E, 3°40'N, i.1913, 3 ♀, Faradje, i.1912; 1 ♂, 1 ♀, Faradje, i.1917; 1 ♂, Medje, 27°15'E, 2°25'N, 10.iv.1910 (all *Lang, Chapin*) (AMNH); 1 ♂, Lomani, xii.1931 (*Collart*); 1 ♂, Ngowa, vi.1938 (*Mertens*); 1 ♀, Ngowa, 7–27.iv.1939 (*Mertens*) (IRSNB); 2 ♀, Congo da Lemba, 1911 (*Mayné*); 1 ♀, Haut-Uele, Moto, 1920 (*Burgeon*); 1 ♀, Elisabethville (R. Lubumbashi), 7.xi.1920 (*Bequaert*); 1 ♀, Katanga, Kando, 1–4.iv.1931 (*de Witte*); 1 ♀, Kisanfu, 1919 (*Vanderijst*); 1 ex. without abdomen, Magabi-Niarembe, v.1935 (*Scops*) (these seven exx all paralectotypes of *gracilis*); 1 ♂, Kivu, Bwito, ca 1700 m, 26.vi.1934 (*Marlier*); 1 ♂, Ituri, Bunia, vi.1938 (*Lefèvre*); 1 ♂, Bas-Congo, Mayidi, 1942 (*van Eyen*); 1 ♂, Rutshuru, Fuku, 30.v.1936 (*Lippens*); 1 ♂, Lulua, Kapanga, iii.1933 (*Overlaet*) (MRAC).

Paralectotypes of *Myla gracilis* Schouteden not belonging to this species. 3 exx determined as *Clavigralla schnellii* (Villiers) by Dolling, 1979: 36, q.v.

Distribution of Pseudophloeinae

Preamble

Without a complete phylogenetic analysis of the subfamily, incorporating the Palaearctic genera, a comprehensive account of its zoogeography is not possible. In undertaking the present revision I have considered every species of the subfamily, including the Palaearctic ones, in relation to the diagnostic features of every genus, and I am reasonably certain that all of the genera currently recognized are monophyletic in origin and holophyletic in composition. However, I have not fully investigated the relationships among all the genera of the subfamily.

Two presumably holophyletic groups of genera are recognized: the tribe Clavigrallini (see Dolling, 1978; 1979a) and a large group of genera including all of those confined to the North Temperate Zone and all of the tropical genera except for *Vilga*, *Risbecocoris*, *Paramyla*, *Hoplolomia* and *Indolomia*. The first two of these genera are probably not descended from the most recent common ancestor of the two big groups while the last three may be related to the non-clavigralline group in some way (see Table 1). The distribution of the various genera of Pseudophloeinae in the major zoogeographical regions is summarized in Table 2. The Afro-tropical region in this table excludes the Mascarene area (Madagascar, Mauritius, Réunion and Rodriguez), which is shown separately. The Oriental region is taken to include New Guinea and the Solomon Islands but Australia is excluded and its pseudophloeine fauna is tabulated in a separate column.

Table 1 Distribution of two characters in the subfamily Pseudophloeinae.

	Antevannal vein absent	Antevannal vein present
Posterior femur without basal tubercle	<i>Vilga</i> , <i>Risbecocoris</i>	Clavigrallini
Posterior femur with basal tubercle	<i>Hoplolomia</i> , <i>Indolomia</i> , <i>Paramyla</i>	Remaining genera

Neotropical

The only genus of Pseudophloeinae represented in the Neotropical region is *Vilga*, which is endemic to the New World. The 14 species were divided among six subgenera by Dolling (1977),

who commented that the differences among these subgenera were of the same degree as those separating some Palaearctic genera. One subgenus, whose single species is facultatively brachypterous, occurs from the extreme southern U.S.A. to El Salvador; all the other subgenera are confined to the Neotropical region and are widely sympatric there, with the exception of one subgenus whose three species are confined to the temperate and largely mountainous regions of Argentina, Chile and Peru. This latter subgenus, through a general reduction of spininess of the body and legs and a flattening and broadening of the body, superficially resembles the tropical montane and temperate South African genus *Paramyla* and the Palaearctic *Arenocoris* and *Bathysolen* Fieber.

Nearctic

The presence of a single species of the otherwise Neotropical genus *Vilga* in Mexico and adjacent areas has been mentioned above. In addition, two genera of Pseudophloeini are shared between the Palaearctic and Nearctic regions.

Coriomeris Westwood has 16 species in the Palaearctic and another four in the Nearctic. The Nearctic species (see Dolling & Yonke, 1976) are mutually very similar and have strictly parapatric distributions, suggesting recent entry into and radiation within the region. Species of *Coriomeris* are found within the Arctic Circle in Alaska, Yakutia and Karelia, so there would seem to be no climatic barrier to migration across the Bering Straits even today.

Ceraleptus Costa has five Palaearctic and four Nearctic species, none of them shared between the two regions. Its nearest relatives appear to be *Microtelocerus* Reuter and *Uratucoris* Puchkov, both genera with very restricted distributions in the mountains of the central southern Palaearctic, so a Palaearctic origin for *Ceraleptus* seems probable. Its American species are rather diverse and fall geographically into two pairs, one pair sympatric along the Pacific coast of North America and the other pair sympatric in the south-eastern U.S.A. (Froeschner, 1963). Members of the genus do not occur at such high latitudes as the extremes penetrated by *Coriomeris* and this fact, coupled with the greater diversity and more complex distribution pattern shown by the species of *Ceraleptus*, suggests that the genus has been present in the Nearctic region longer than has *Coriomeris*, presumably arriving in one or more immigration episodes during an era of warmer climate than that of the present day.

Palaearctic

Twelve genera and about 39 species of Pseudophloeini occur in the Palaearctic region; only one of these species is shared with another region: *Arenocoris intermedius*, whose range includes western temperate Asia, Iberia and the northern coastal countries of Africa and extends southwards into Chad and Ethiopia. As indicated above, the Palaearctic genera *Coriomeris* and *Ceraleptus* have both entered North America and have endemic species there.

The Palaearctic intrusions of two species of the tribe Clavigrallini, *Clavigralla scutellaris* (into Afghanistan) and *Gralliclava horrens* (into Japan) are mentioned below; no other genus of the subfamily is represented in both the Palaearctic and Afrotropical or the Palaearctic and Oriental regions.

Afrotropical and Oriental Clavigrallini

The well-defined tribe Clavigrallini comprises four genera whose interrelationships are unclear. With the exception of two minor intrusions into the Palaearctic region, mentioned below, the tribe is confined to the tropical regions of the Old World.

Clavigralla Spinola is the largest genus of Pseudophloeinae, with 46 described species. It has clearly undergone most of its radiation on the African mainland, where 38 of its species are found. Only one species, *C. elongata* Signoret, which is widespread on the African mainland, is present on the smaller offshore Afrotropical islands. It has reached São Tomé and the Cape Verde Islands in the Atlantic (Dolling, 1979a: 28 erroneously reported it from the Canary Islands on the basis of a mislabelled specimen from the Wollaston collection; the card bears a

Table 2 Number of species of each genus of Pseudophloeinae in the regions indicated. Species occurring in more than one region are scored in parentheses in regions other than those of their putative origin as are genera with no endemic species.

	Neotropical	Nearctic	Palearctic	Afrotropical	Macaronesia	Oriental	Australia	Total
<i>Vilga</i>	13+(1)	1						14
<i>Ceraleptus</i>		4	5					9
<i>Coriomeris</i>		4	16					20
<i>Arenocoris</i>			4	(1)				4
(nine genera ¹)			15					15
<i>Risbecocoris</i>				3		2		5
<i>Hoplolomia</i>						2		2
<i>Indolomia</i>						1		1
<i>Pungra</i>						1		1
<i>Pseudomyia</i>						2		2
<i>Psilolomia</i>				4		9		13
<i>Paramyla</i>				2				2
<i>Neomevaniomorpha</i>				1				1
<i>Mevaniomorpha</i>				2				2
<i>Mevanidea</i>				1	1			2
<i>Myla</i>				11				11
<i>Clavigralla</i>			(1)	38	6+(1)	2+(1)		46
<i>Oncaspidia</i>				1				1
<i>Clavigralloides</i>						5	(2)	5
<i>Gralliclava</i>			(1)			8	2	10
Total genera	1	3	12+(2)	9+(1)	2	9	1+(1)	28
Total species	13	9	40+(2)	63+(1)	7+(1)	32+(1)	2+(2)	166

¹ *Anoplocerus*, *Bathysolen*, *Bothrostethus*, *Loxocnemis*, *Microtelocerus*, *Nemocoris*, *Strobilotoma*, *Ulmicola*, *Uratucoris*.

colour-coded mark that indicates its true provenance as the Cape Verde Islands), and Madagascar, Mauritius, Réunion, Rodriguez and the Seychelles in the Indian Ocean. It has also been reported from Arabia. In 1979 I had seen no specimens of the species from the mainland of West Africa, where it seems to be largely replaced by *C. shadabi* Dolling and *C. breviceps* Dolling. I have now seen specimens of it from two localities in Senegal. *C. elongata* is the only representative of the subfamily in these Atlantic and Indian Ocean islands with the exception of six endemic species in Madagascar. One of these, *C. tuberculicollis* (Reuter), is a taxonomically isolated species with several plesiomorphic features; it has probably been present in Madagascar much longer than any other species of the tribe. Three Malagasy species are closely similar to *C. elongata* and may be either local derivatives of it or descendants of a single, *elongata*-like immigrant. The other two endemics are members of the *C. tomentosicollis* Stål group but belong to different subgroups and clearly derive from two separate immigrations. Thus, Madagascar seems to have been colonized on at least four and possibly five separate occasions by Clavigrallini, but there is evidence for local radiation stemming from only one of these invasions. *Clavigralla* is evidently a recent arrival in the Oriental region. Its three Oriental species all belong to the same subgroup of the *tomentosicollis*-group. One of them, *C. scutellaris* (Westwood), which is probably the sister-species of *C. tomentosicollis*, is also found in north-eastern Africa and Arabia; in Asia it extends as far northwards as Afghanistan. The other two are vicariant sister-species, one confined to Sri Lanka and southern India and the other distributed from northern India to southern China and Vietnam; the Indian population of this second species is recognizably distinct from the populations further east.

Oncaspidia Stål has a single, widespread species endemic to Africa.

Clavigralloides Dolling has the most easterly centre of distribution of any genus of Pseudophloeinae. Three of its five species occur in New Guinea; one of these three is, so far as is known, endemic while the other two extend southwards into northern Australia and one of these also spreads northwards to southern China. Closely related to these two is a species restricted to the Lesser Sunda Islands. The fifth member of the genus is rather isolated taxonomically and is divided into northern Indian and a southern Chinese subspecies.

Gralliclava Dolling species are distributed from India to Australia. They fall into two groups, one with a plesiomorphic condition of the male genital capsule and a variety of unusual paramere shapes, and the other with an apomorphic condition of the capsule and rather uniform parameres. The first group comprises six known species with restricted distributions; three of these are Indian; one is found in the Himalayas and at high altitudes in southern China and Laos, one is known only from its high altitude type-locality in Java and one, surprisingly, is known from a single specimen taken on a small Australian island in the Torres Strait. The four species of the second group between them occupy an almost continuous range from Sri Lanka and India to Japan, the Solomon Islands and tropical Australia. One is known from two specimens, one from Timor and the other from Flores. The most widespread species, *G. horrens* Dohrn, is also known from Timor, from Wetter and the Sulawesi group, and thence northwards to Japan (Japanese records, all from Kyushu, are summarized by Kawazawa, 1978) and westwards to India and Sri Lanka. A third species is common in New Guinea and is also recorded from Ambon and the Admiralty, Bismarck and Solomon groups. The fourth species has been collected from many localities in Queensland and the Northern Territory of Australia but it has never been found elsewhere, nor has any other species of the genus been taken in Australia. The almost complete allopatry of these four species and the fact that the Torres Strait separates two of them suggests a very recent radiation of this group.

Afrotropical and Oriental Pseudophloeini

Apart from the intrusive *Arenocoris intermedius*, the present revision recognizes seven genera with 25 species in the Afrotropical region and six genera with 17 species in the Oriental. Two of these genera and none of the species are shared between the two regions. The largest genera are the wholly Afrotropical *Myla*, with 11 species, and the shared *Psilolomia*, with 13.

Risbecocoris, with five described species, occupies a probably almost continuous belt of grassland and semi-desert from Senegal via Arabia to Delhi, taking in the Air mountains and northern Kenya as well. This type of habitat has probably been available in the area for a very long time and dispersal across it between Africa and Asia would present no problems for an organism as well adapted to it as is *Risbecocoris*. It makes little sense to attribute part of this arid zone to the Afrotropical region and part to the Oriental in the context of the biogeography of such organisms.

Psilolomia displays its greatest diversity in the Oriental region. A group of dark-coloured species, whose characteristic habitat is probably forest clearings, extends no further westwards than eastern India while a group of yellowish species, probably characteristic of dry, open woodland, is distributed from West Africa to South East Asia. Only four species of this group occur in Africa; they have had little or no success south of the Equator. One of them, *Psilolomia nigeriensis*, shows a tendency to split into northern and southern races in Nigeria, perhaps in response to differing climatic conditions. A single migration in the fairly recent past from India into Africa via a more humid Arabia seems the most probable explanation for its occurrence in both continents. Large areas of apparently suitable terrain remain unoccupied by this genus in eastern and southern Africa.

Mevanidea is the only genus of Pseudophloeinae, apart from *Clavigralla*, to have been found in Madagascar. The two species of the genus show classic allopatry, one in mainland Africa and the other endemic to Madagascar.

Discussion

The faunistic picture that emerges is one of greatest diversity in the tropics of the Old World with rather less diverse but long established faunas in the Palaearctic and Neotropical regions. The Neotropical and Palaearctic faunas seem to have developed in almost complete isolation from each other and from the Palaetropical faunas. The Nearctic region, Australia and Madagascar have no endemic genera and have played only a peripheral part in the evolutionary history of the subfamily. Apart from *Risbecocoris*, whose range is in a transitional zone, only one genus, *Psilolomia*, is shared between the Oriental and Afrotropical regions. It is the only genus that can be shown to have successfully invaded and begun to diversify in a region where a diverse pseudophloeine fauna was already present.

The genus *Vilga* has evidently been present in the Neotropics for a very long time, perhaps since before the opening of the Atlantic Ocean; this would place the early radiation of the subfamily before the end of the Cretaceous period. Among tropical Coreoidea it is frequently the case that the distribution of the subfamilies is pantropical while the tribes are restricted to either the Old World or the New.

Dense forest and water seem to have been very effective barriers to dispersal of Pseudophloeini but less effective in the case of Clavigrallini. The more elongate condition of the hemelytra of the latter, with a tendency for the corium to extend apically along the costal margin of the hemelytron, and the deeper thorax, presumably housing larger flight-muscles, are suggestive of a more sustained power of flight which would enable its possessor to overcome the obstacles that inhibit the dispersal of Pseudophloeini. The distribution patterns of two groups of recently differentiated species illustrate this difference in dispersal ability, and hence in rates of genetic interchange. The genus *Coriomeris* in North America has split into four recognizably distinct though closely related species without any intervening barriers of forest or water, whereas the species of the *horrens*-group of the clavigralline genus *Gralliclava* are, with one very minor exception, separated by sea barriers. Parapatric speciation may also be in progress in the case of the northern and southern forms of *Psilolomia nigeriensis*.

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